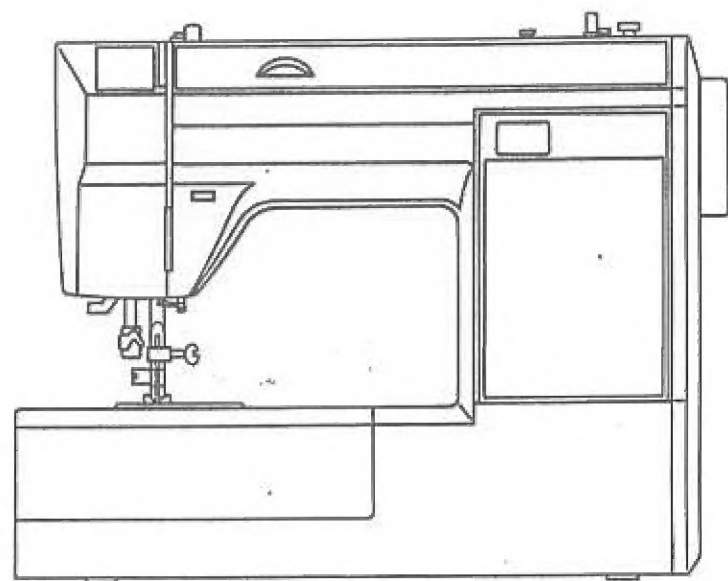


RICCAR

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model
REC 5900

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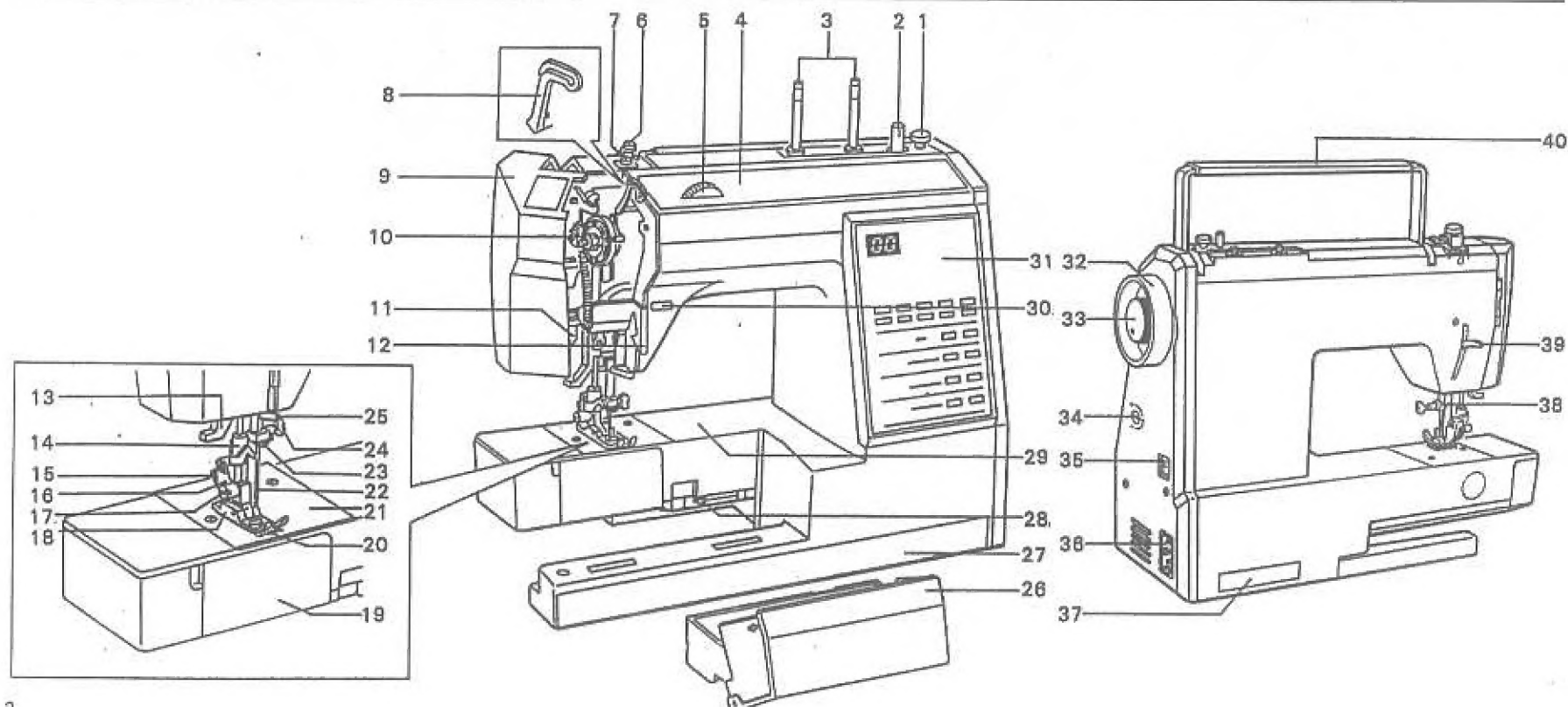
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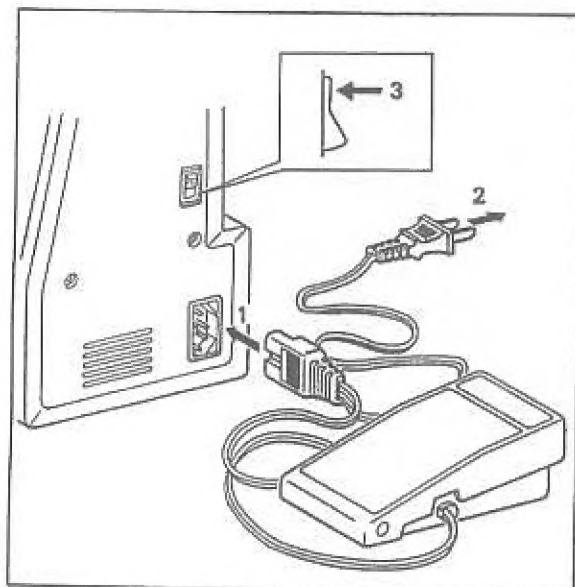
GETTING TO KNOW YOUR SEWING MACHINE

- | | | | |
|-------------------------------|---|-----------------------------|-------------------------------------|
| 1. Bobbin Winder Stop | 11. Sewing Light | 21. Needle Plate | 31. Control Panel |
| 2. Bobbin Winder Spindle | 12. Thread Check Spring | 22. Needle | 32. Hand Wheel |
| 3. Spool Pins | 13. Needle Threader Lever | 23. Needle Bar Thread Guide | 33. Stop Motion Knob |
| 4. Stitch Pattern Chart Label | 14. Needle Threader | 24. Needle Clamp Screw | 34. Forward/Reverse Adjusting Screw |
| 5. Thread Tension Dial | 15. Presser Foot Release Button | 25. Lower Thread Guide | 35. Light and Power Switch |
| 6. Bobbin Winder Tension Disc | 16. Presser Foot Holder | 26. Storage Compartment | 36. Terminal Box |
| 7. Arm Cover Thread Guide | 17. Presser Foot Thumb Screw | 27. Measure | 37. Serial and Model Number Plate |
| 8. Thread Take-Up Lever | 18. Presser Foot | 28. Sew-Darn Lever | 38. Thread Cutter |
| 9. Face Plate | 19. Bobbin Case Cover
(Shuttle Inside) | 29. Free Arm | 39. Presser Foot Lifter |
| 10. Pressure Regulator | 20. Fabric Feed Dogs | 30. Reverse Stitch Button | 40. Handle |



ELECTRICAL CONNECTION

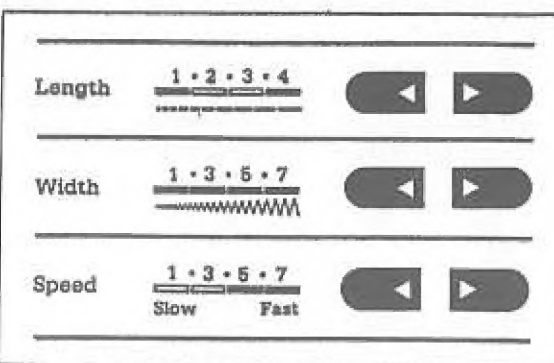
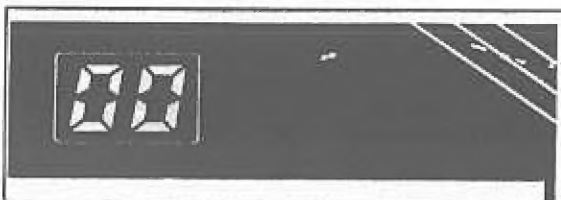
1. Connect foot control to the machine by inserting four-hole plug over the four prongs on the side of the sewing machine head.
2. When you are ready to sew, set foot control on the floor and connect power cord plug into electrical outlet.
3. The light and power switch is located directly above the terminal box on the right side of your machine. The machine will not operate unless this switch is on. To turn the machine on, depress the upper side of the switch.



When the power is on, the stitching area lights up and the needle bar automatically shifts back and forth, adjusting for straight stitching. "00" will appear in the window of the stitch selector panel, two green lights will light on the speed control and a slower speed is automatically selected. The machine will pre-set itself for a stitch length suitable for the pattern selected. The stitch length will automatically be set to 2.5 for straight stitching and no lights will come on for stitch width.

You may wish to adjust the stitch length and stitch width (except for "00,07,18,36") manually to length and width appropriate for the fabric weight (Refer to Page 8 "Setting Stitch Length", Page 9 "Setting Stitch Width").

Turn the machine OFF when not in use to prevent accidents.



Foot Control

This foot control was designed exclusively for this model, and is not to be used on any other sewing machine, nor should any other foot control be connected to this model.

Place the foot control on the floor where you can reach it easily with your foot. The harder (more pressure) the foot control is pressed, the faster the machine runs.

CAUTION

1. Disconnect the electrical cord from the wall outlet when the machine is not in use or when it is being cleaned.
2. Always attach foot control to the machine before plugging it into wall outlet.
3. Before you connect the cord to a wall outlet, turn off the light and power switch to prevent accidents.

THE 2-IN-1 OPEN ARM SEWING SURFACE

Your open arm sewing machine is designed with an exclusive 2-in-1 sewing surface. For all regular sewing, it's a flat bed machine. Then by simply removing the storage compartment, it becomes an open arm machine, making hard to reach areas readily accessible.

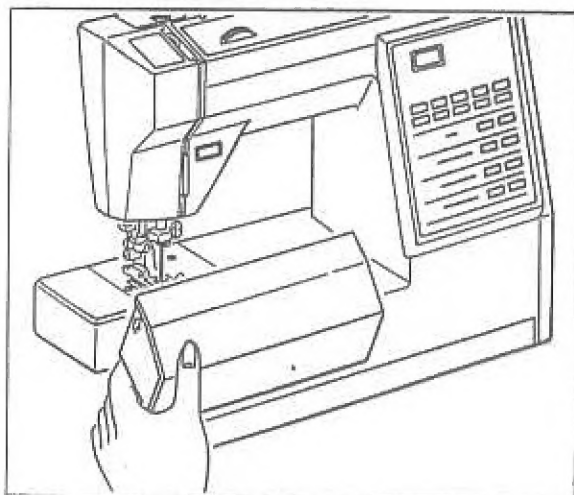
Here are some of the many uses for your open arm sewing machine:

- Mending and repairing pantlegs
- Darning socks
- Blind hem stitching cuffs
- Button and buttonhole sewing on sleeves
- Embroidery and topstitching on cuffs and sleeves
- Doll or child-size clothes
- Any hard to reach-areas

All of the features of flat bed sewing are now available to you on an open arm machine allowing you more versatility than ever before.

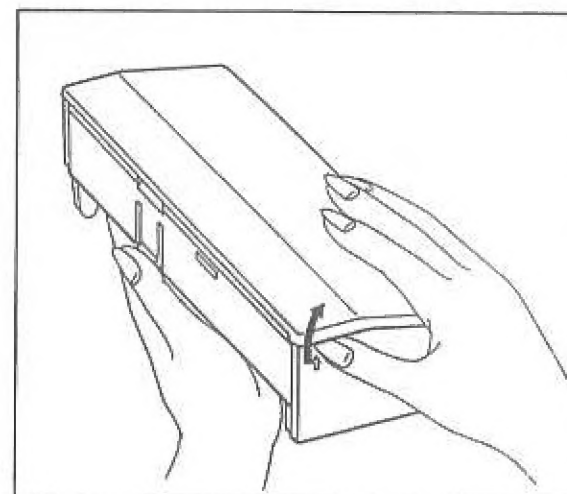
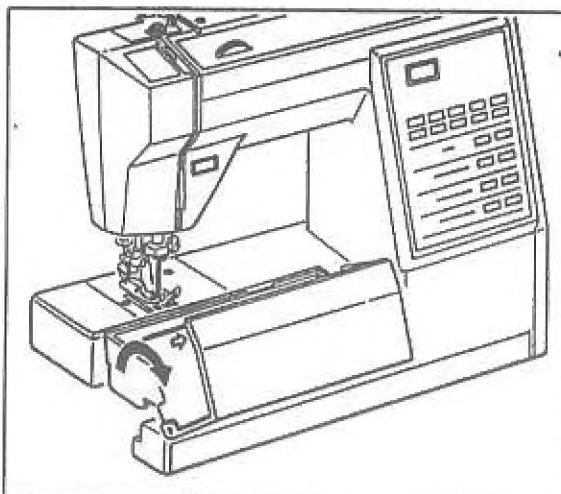
Removing storage compartment

To remove the storage compartment, lift the left side of the case up and away. To attach, set the studs into the holes of the machine base and press down.



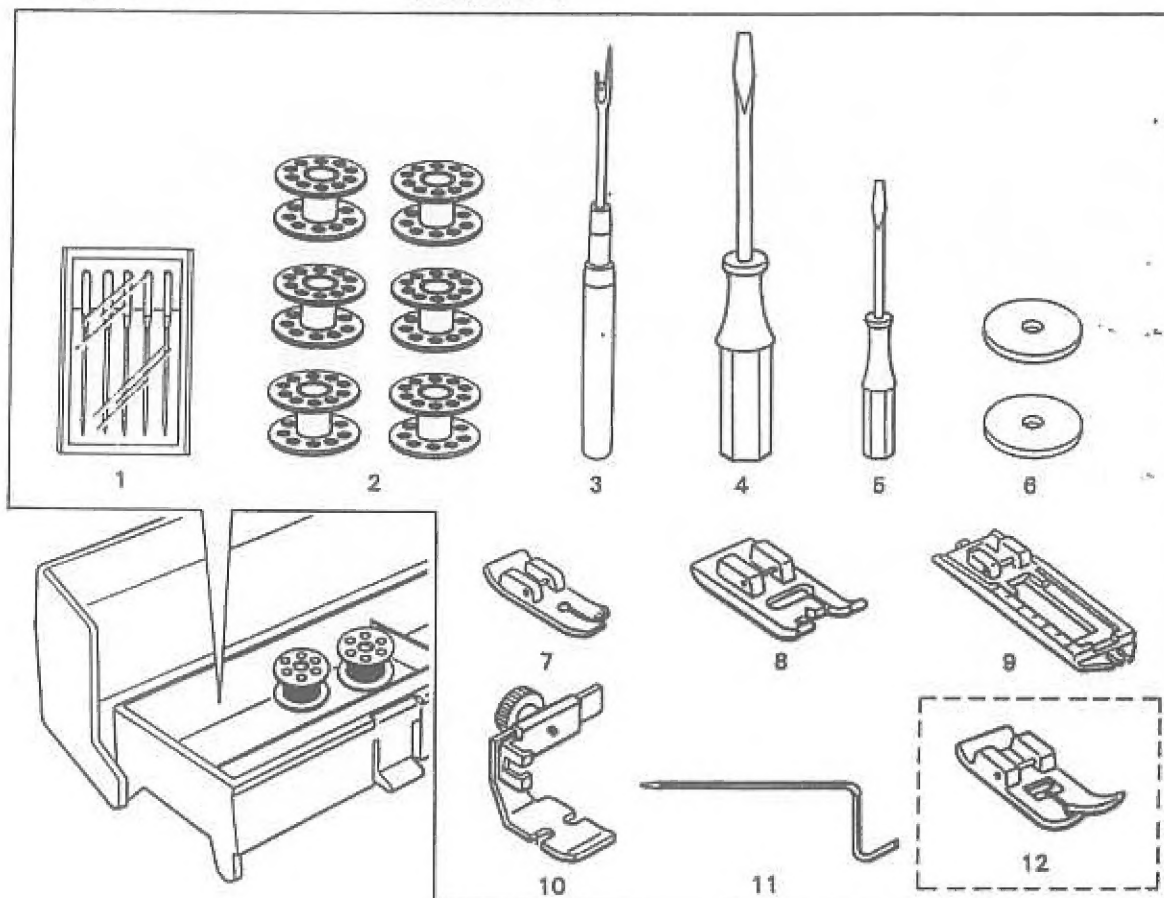
Opening accessory storage

To open the accessory storage area, lift up on the top left side of the compartment. The area inside the storage compartment is divided into four sections for storing the accessories.



ACCESSORIES

- | | | |
|--|-------------------------|--|
| 1. Needle Case: four regular needles, one knit needle (blue shank) | 5. Small Screwdriver | 11. Quilting Guide |
| 2. Bobbins (6) | 6. Felt Washers | 12. Regular Foot (This foot is attached to the machine.) |
| 3. Seam Ripper | 7. Straight Stitch Foot | |
| 4. Large Screwdriver | 8. Satin Stitch Foot | |
| | 9. Buttonhole Foot | |
| | 10. Zipper Foot | |

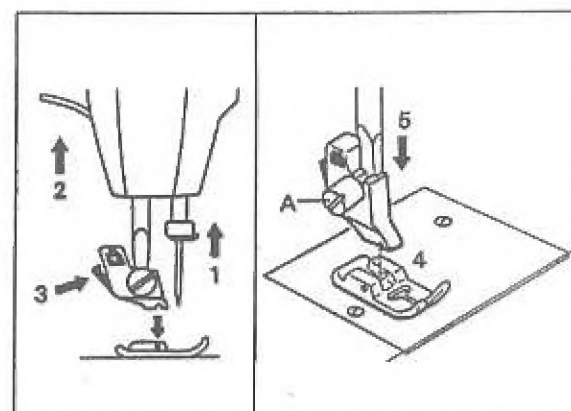


CHANGING THE PRESSER FOOT

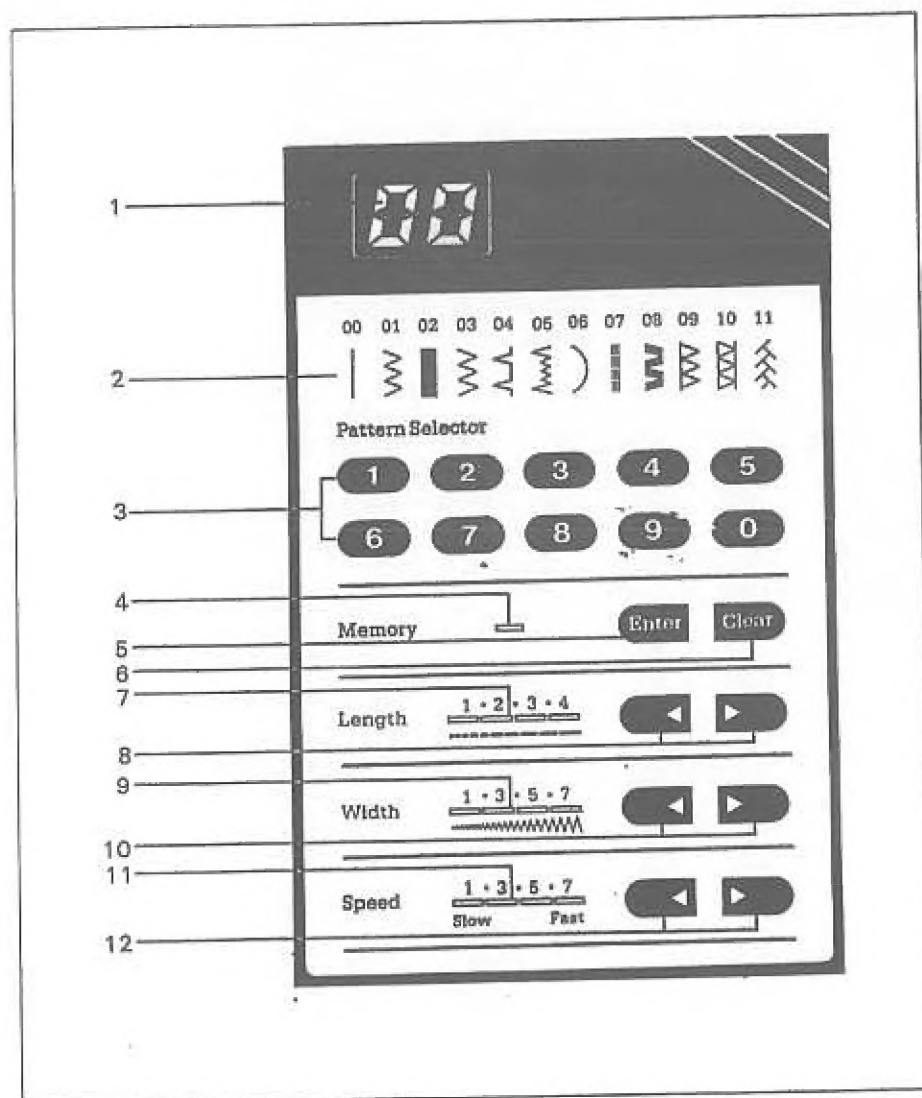
The presser foot is changed in order to use the other accessories.

1. Turn the hand wheel toward you until the needle is at its highest point.
2. Lift up the presser foot by raising the presser foot lifter.
3. Remove the presser foot by pushing the presser foot release button toward you, and the presser foot will disengage.
4. Place the desired foot below the presser foot holder so that the pin on the foot fits into the space between the presser foot holder bracket and the spring.
5. Lower the presser bar with the presser foot lifter and the presser foot will snap into place.

Certain presser foot cannot be constructed as snap-on feet. In those instances the presser foot holder must also be changed. Remove snap-on presser foot by loosening thumb screw (A).



CONTROL PANEL FEATURES



This illustration shows the various features located on the face of the sewing machine head. Specific information on the use of these features is provided throughout this booklet. Please read these instructions carefully before beginning to sew.

1. Stitch Pattern Number Display
2. Utility Stitch Pattern Chart
3. Stitch Pattern Number Selector Pads
4. Stitch Memory Indicator Light
5. Stitch Memory Enter Pad
6. Stitch Memory Clear Pad
7. Stitch Length Indicator Lights
8. Stitch Length Pads
9. Stitch Width Indicator Lights
10. Stitch Width Pads
11. Speed Control Indicator Lights
12. Speed Control Pads

SELECTING STITCH PATTERNS

Your sewing machine has 100 stitch patterns. Each stitch pattern is given two digit numbers from "00" to "99". The selected pattern number lights up on the Stitch Pattern Number Display. You can select any pattern number by touching the Stitch Pattern Number Selector Pads.

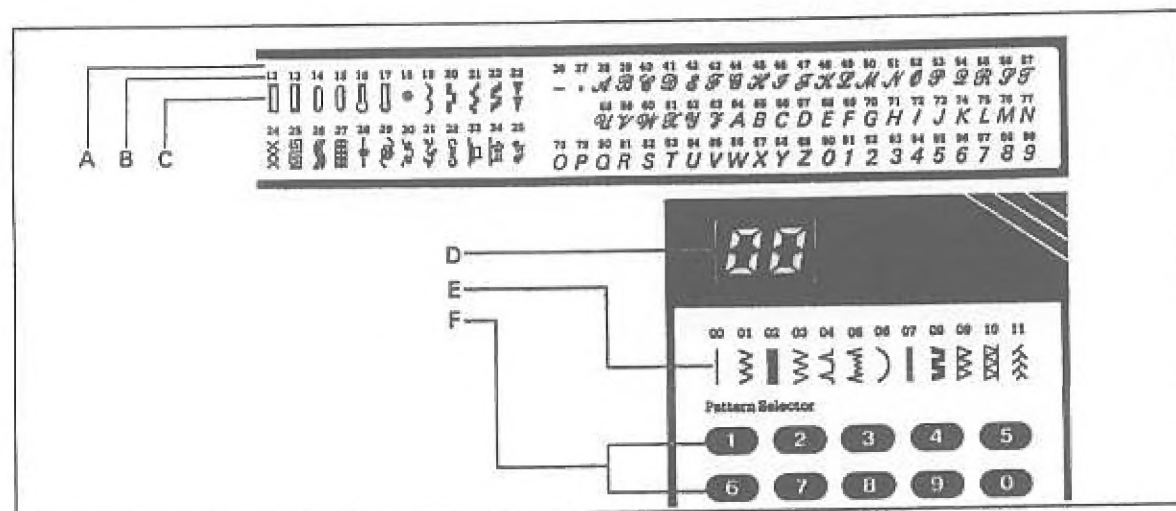
1. Select pattern number of desired stitch.
Touch Pattern Number Selector Pad corresponding to ten-digit (10) number first. An underlining mark will appear in the place where the one-digit (1) number should be.
2. Touch number pad corresponding to one-digit number. The underline will disappear and correct pattern number will appear.

NOTE:

1. Numbers over "99" cannot be selected.
2. When a pattern is selected the preset length and width suitable for that pattern will appear.
(Since pattern number 00, 07, 18, 36 are basically straight stitches, the stitch width will not appear.)
3. Stitch selection cannot be made while sewing or winding the bobbin.

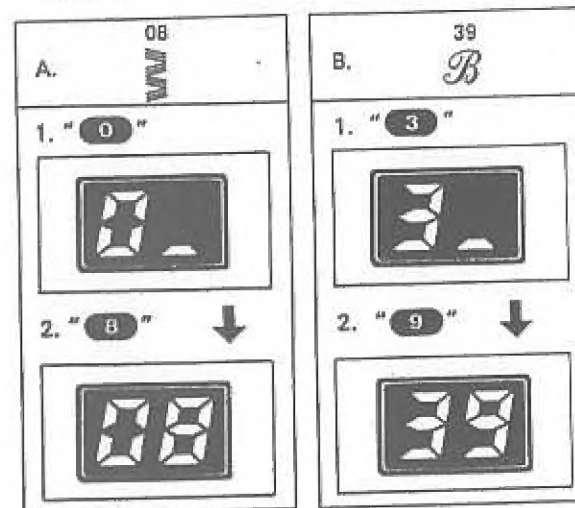
- A. Stitch Pattern Chart Label
B. Stitch Pattern Number
C. Stitch Pattern

- D. Stitch Pattern Number Display
E. Utility Stitch Pattern Chart
F. Stitch Pattern Number Selector Pads



EXAMPLE

- | | |
|--|--|
| <p>A. Set Stitch Selector to 08.</p> <ol style="list-style-type: none"> 1. Touch the pad "0".
"0" will appear on ten digit side. 2. Touch the pad "8".
"08" has been selected. | <p>B. Set Stitch Selector to 39.</p> <ol style="list-style-type: none"> 1. Touch the pad "3".
"3" will appear on ten digit side. 2. Touch the pad "9".
"39" has been selected. |
|--|--|



STITCH MEMORY PANEL

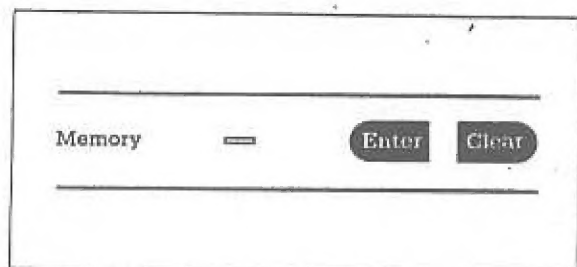
The Stitch Memory lets you program stitches you want to repeat; sequence letters for monogramming and allows you to sew the same size buttonholes.

To memorize the sequence of stitch pattern, touch the "Enter" pad after selecting each stitch pattern.

For further details, see page 22 to 24 "STITCH MEMORY".

To memorize the size of buttonhole, touch the "Enter" pad after sewing buttonhole.

For further details, see page 28 "BUTTONHOLE MEMORY SEWING".



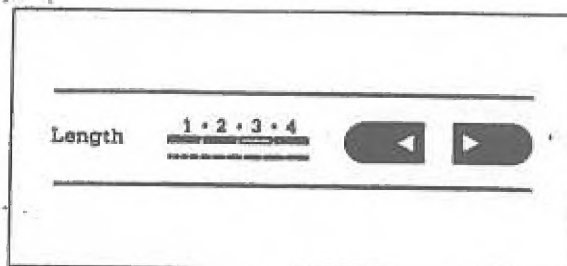
SETTING STITCH LENGTH

The stitch length has automatically been preset to a standard length depending on pattern selected. You may, however, adjust the stitch length by touching the stitch length pads to a desired length appropriate for the weight of fabric. There are seven stitch lengths ranging from 1 (shortest) to 4 (longest). Firm, closely woven fabrics require a shorter stitch while loosely woven fabrics sew best with a longer stitch. Thicker or bulky fabrics also require a longer stitch.

STITCH LENGTH PADS








For a shorter stitch, touch the pad on left side.

For a longer stitch, touch the pad on right side.



STITCH LENGTH INDICATOR LIGHTS

The four green lights will indicate the seven steps of the stitch length as the chart below.

1	1 · 2 · 3 · 4	-----	
1.5	1 · 2 · 3 · 4	-----	
2	1 · 2 · 3 · 4	-----	
2.5	1 · 2 · 3 · 4	-----	
3	1 · 2 · 3 · 4	-----	
3.5	1 · 2 · 3 · 4	-----	
4	1 · 2 · 3 · 4	-----	

SETTING STITCH WIDTH

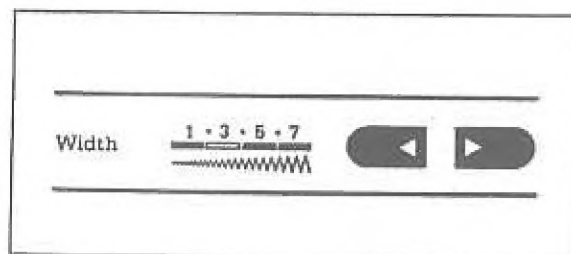
The stitch width will automatically light on a preset width when a stitch pattern is selected. You may, however, adjust the stitch width manually by touching the stitch width pads to the desired width. There are seven stitch widths ranging from 1 (narrowest) to 7 (widest).

NOTE: Since pattern numbers 00, 07, 18, 36 are basically straight stitches, the stitch width indicator will not light.

STITCH WIDTH PADS

For a narrower stitch, touch the pad on left side.

For a wider stitch, touch the pad on right side.



STITCH WIDTH INDICATOR LIGHTS

The four green lights will indicate the seven steps of the stitch width as the chart below.

1	1 • 3 • 5 • 7		
2	1 • 3 • 5 • 7		
3	1 • 3 • 5 • 7		
4	1 • 3 • 5 • 7		
5	1 • 3 • 5 • 7		
6	1 • 3 • 5 • 7		
7	1 • 3 • 5 • 7		

VARIABLE SPEED CONTROL PADS

The speed of the machine is controlled by both the pressure exerted on the foot control and by changing speed control pads.

There are seven variable speeds ranging from 1 (slowest) to 7 (fastest).

When the light and power switch is turned on, the machine will automatically adjust to 2.

Speed can be adjusted prior to or during sewing.

SPEED CONTROL PADS

The speed will decrease each time the pad on left side is touched.

The speed will increase each time the pad on right side is touched.

SPEED CONTROL INDICATOR LIGHTS

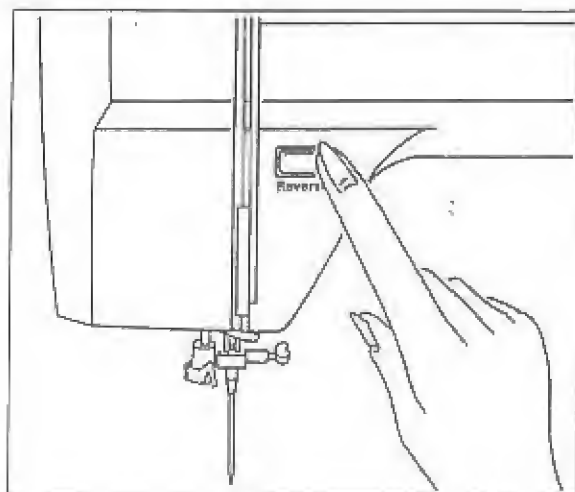
The four green lights will indicate the seven steps of the speed as the chart below.

Speed 1 • 3 • 5 • 7 Slow Fast			
1 • 3 • 5 • 7	1		
1 • 3 • 5 • 7	2		
1 • 3 • 5 • 7	3		
1 • 3 • 5 • 7	4		
1 • 3 • 5 • 7	5		
1 • 3 • 5 • 7	6		
1 • 3 • 5 • 7	7		

REVERSE STITCHING

Fabric normally moves from front to rear (away from the operator) when sewing.

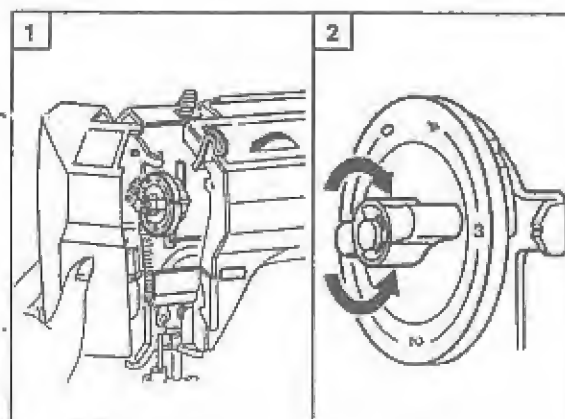
To sew in reverse, as for tacking ends of seams, press Reverse button. Machine will feed fabric in reverse as long as button is being pressed.



PRESSURE REGULATOR

When sewing, the fabric is held in position between the presser foot and fabric feed dogs. Pressure on the foot can be adjusted for different weight fabrics. Pressure is correct when fabric moves along smoothly and evenly, without slipping or assistance from the operator, and stitches are uniform in size.

1. Pressure is regulated by turning the pressure regulator which is inside the face plate. When you turn the dial to a higher number, more pressure is obtained.
2. As a rule, the heavier the fabric, the more pressure required. Too much pressure will mar smooth surface and pile fabrics; insufficient pressure can cause poor feeding and skipped stitches.

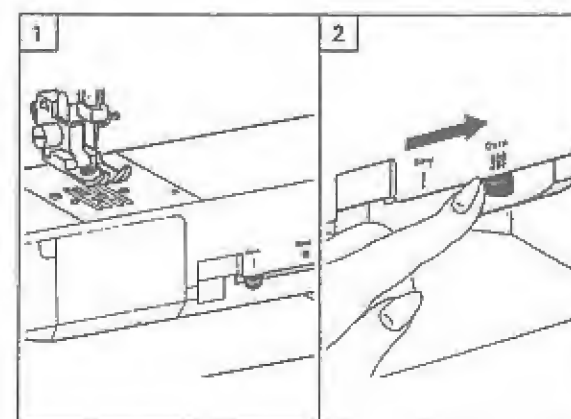


SEW-DARN LEVER

The fabric feed dogs project up through the needle plate, directly below the presser foot. Their function is to move the fabric being sewn. They can be raised or lowered for various types of fabric and work by moving the "Sew-Darn" lever.

The "Sew-Dam" lever controls the fabric feed dogs. When fabric feed dogs are lowered or raised for a specific purpose, pressure on the foot should be increased or reduced correspondingly.

1. For ordinary sewing, move lever to the left. This raises fabric feed dogs to their highest position. For most sewing, the lever should be in this position.
2. For darning or free motion embroidery or whenever fabric is to be moved by hand, move lever to the right to lower the fabric feed dogs.



NEEDLE, THREAD AND FABRIC CHART

The chart shows size and type of thread, and needle size, for various weights and types of fabrics. Size means the fineness or thickness of both needle and thread. Use the same thread for needle and bobbin.

FABRICS	THREADS	NEEDLE SIZES
DELICATE: chiffon, tulle, organdy, sheer lace and net	#60 Mercerized Cotton A Silk Fine Polyester Synthetic	9
LIGHTWEIGHT: batiste, voile, taffeta, crepe, velvet, satin, surah, peau de soie, brocade, tricot, matte jersey, single knits	#50 Mercerized Cotton A Silk Fine Polyester Synthetic	11
MEDIUM WEIGHT: gingham, seersucker, percale, pique, linen, lightweight woolens, chintz, fine corduroy, velveteen, suitings, double knits, spandex, stretch terry, sweater knits	#50 Mercerized Cotton A Silk Polyester Synthetic	14
MEDIUM HEAVY: denim, duck, sailcloth, gabardine, tweed, drapery fabrics, vinyl, corduroy, bonded fabric, short-pile fabrics, heavy knits	Heavy-Duty Mercerized Cotton A Silk Polyester Synthetic	18
HEAVY: coatings, upholstery fabric, canvas, deep-pile fabrics	Heavy-Duty Mercerized Cotton Polyester Synthetic	18

The fiber of the fabric and the fiber of the thread should be similar. This is important because the thread should react as the fabric does to repeated cleanings, bleaches, and iron heat.

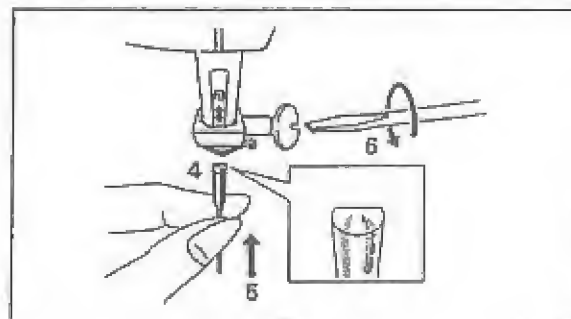
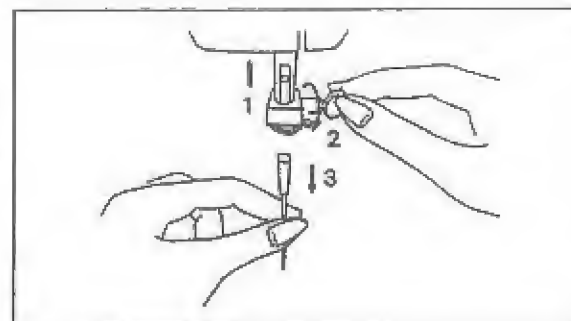
The knit needle (with blue shank) is designed especially for sewing synthetic woven stretch and knit fabrics, as well as lingerie, elastic and other lightweight fabric that is usually difficult to sew.

Correct needle length is 1-17/32". The needle size is located on the shank of the needle.

SETTING THE NEEDLE

Select a needle of proper type and size for fabric to be sewn.

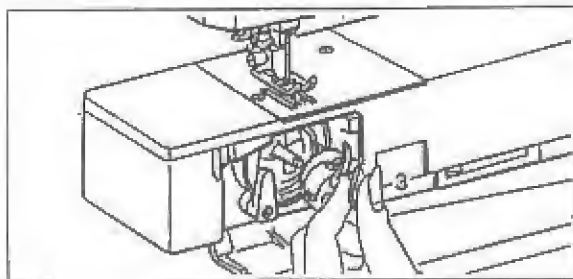
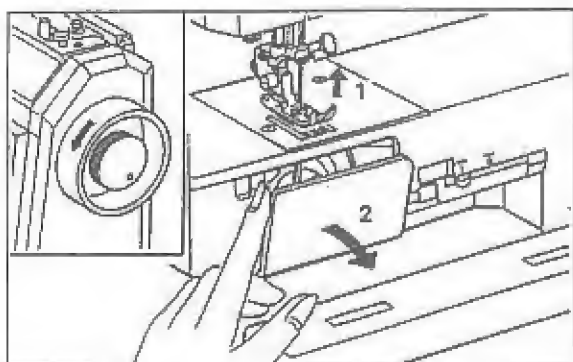
1. Turn hand wheel toward you until needle bar is at its highest point.
2. Loosen needle clamp screw.
3. Remove the needle.
4. Place flat side of needle towards the back of machine.
5. Insert needle in needle clamp as far as it will go.
6. Tighten needle clamp screw.



SETTING THE BOBBIN THREAD

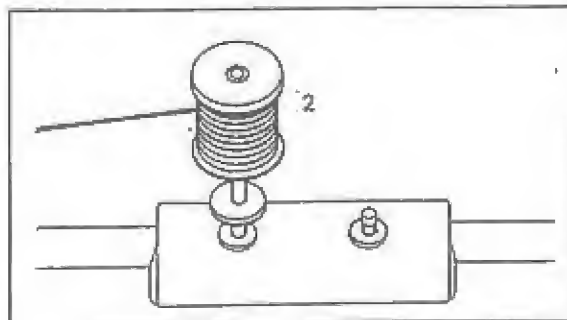
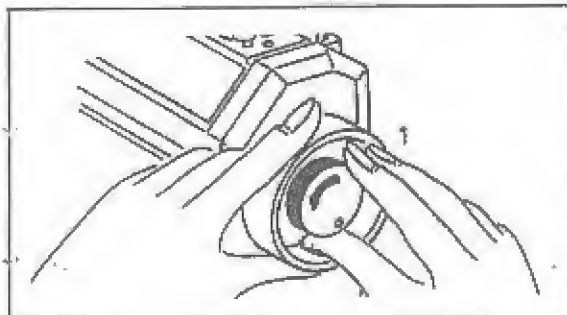
REMOVING THE BOBBIN CASE AND BOBBIN

1. Turn hand wheel toward you until needle bar is at its highest position.
2. Open bobbin case cover.
3. Grasp bobbin case latch and withdraw bobbin and case from shuttle body.
To remove bobbin from case, release latch and turn case upside down.

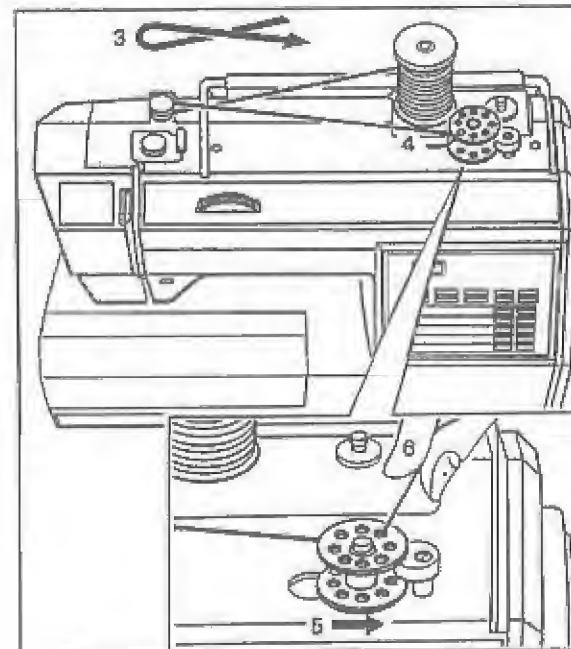


WINDING THE BOBBIN

1. Free needle bar by holding hand wheel and turning stop motion knob toward you 1/4 turn.
2. Pull out the spool pin. Place a felt washer and spool of thread on spool pin.



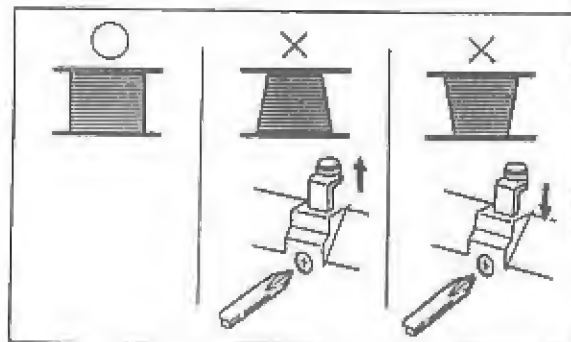
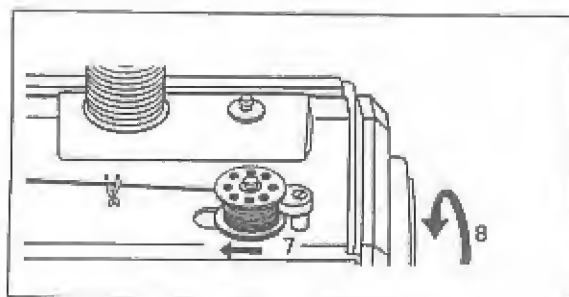
3. Bring thread through tension disc.
4. Insert thread through any hole on the upper side of the bobbin from inside-out. Leave 3 to 4 inches of thread projecting from the bobbin.
5. Place bobbin on bobbin winder spindle and push spindle toward bobbin winder stop to engage the bobbin winding mechanism.
6. Hold end of thread and operate foot control to start the machine.
When spindle starts to spin, end of thread will break off.



7. Spindle will stop when bobbin is full. Push bobbin and spindle to the left. Remove bobbin from spindle and cut thread.

8. Hold hand wheel and tighten stop motion knob by turning away from you.

NOTE: If bobbin winds unevenly, loosen screw which holds bobbin tension disc and move disc up or down, as required, to align it with bobbin winder. When the tension disc is properly positioned, tighten the screw.

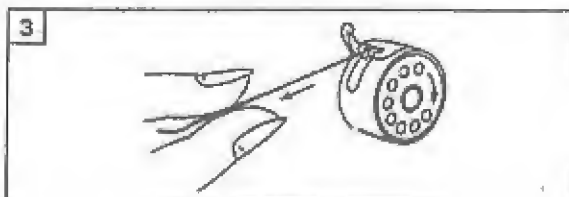
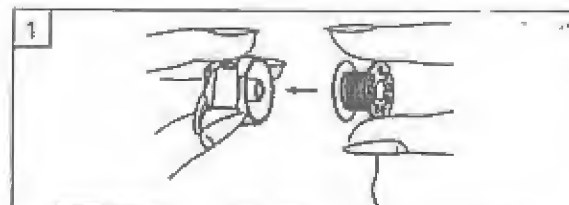


INSERTING THE BOBBIN INTO CASE

1. Hold bobbin case in left hand with the slot in the edge of the case on top. Hold bobbin in right hand with thread on top leading from left to right.

2. Insert bobbin in case and draw thread up into slot in case.

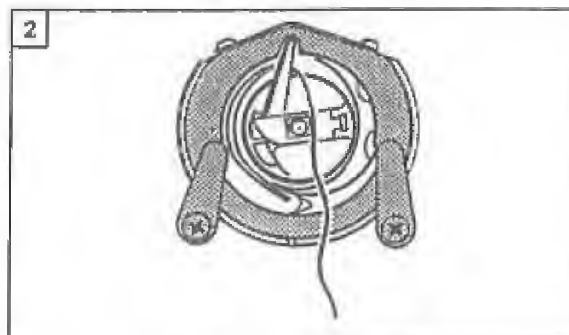
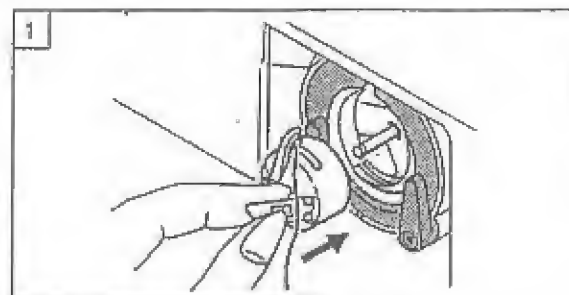
3. Draw thread under tension spring end into fork-shaped opening of spring. Bobbin turns clockwise in case when the extending thread is pulled.



INSERTING THE BOBBIN INTO SHUTTLE BODY

1. After threading bobbin in case, open bobbin case latch, grasping it in left hand, with bobbin case finger pointing up.

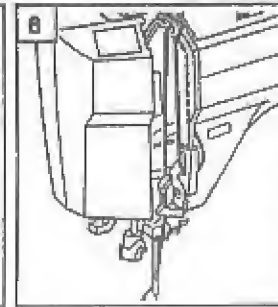
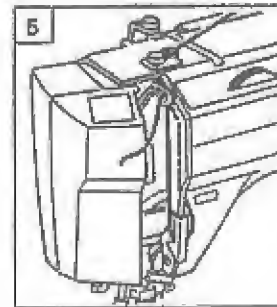
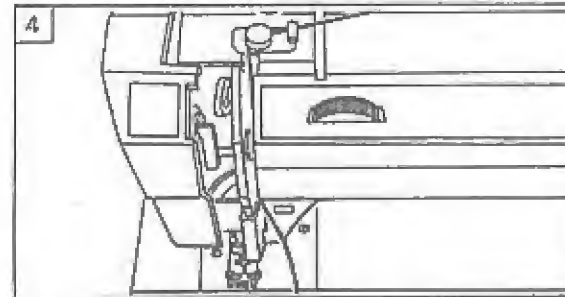
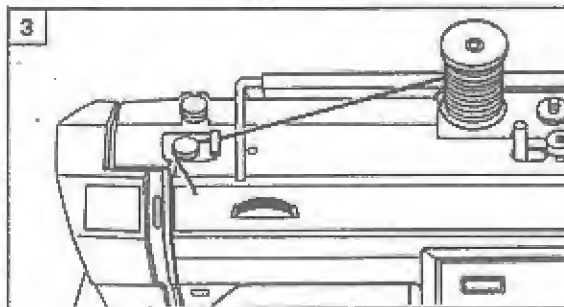
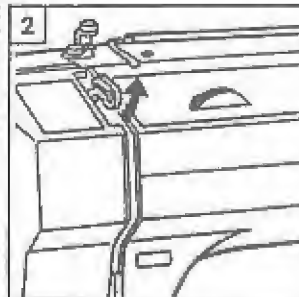
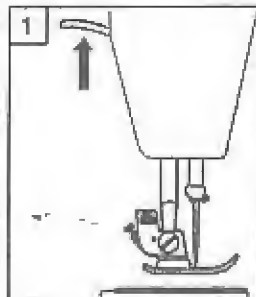
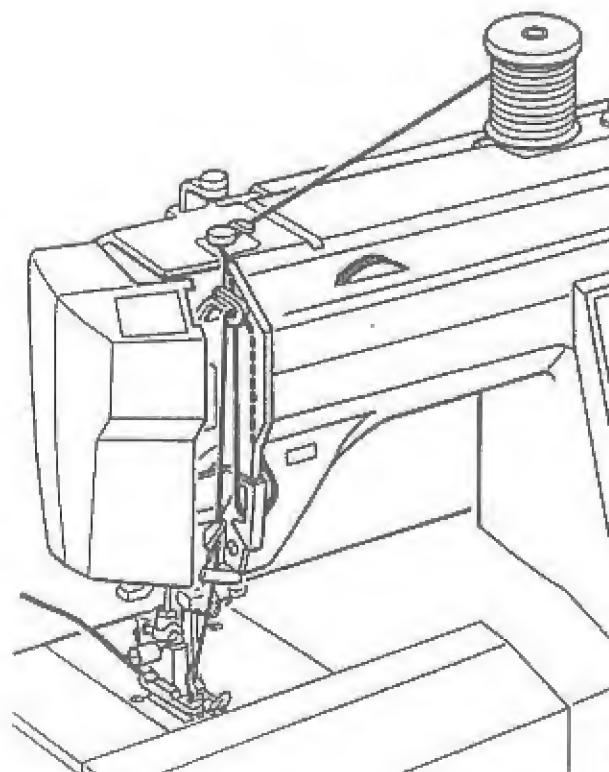
2. Slip bobbin and case on stud of shuttle body, and press in securely. Release bobbin case latch. Close bobbin case cover.



THREADING THE MACHINE

There is only one correct way to thread your machine for sewing.

1. Raise presser foot lifter.
2. Turn hand wheel toward you to raise thread take-up lever to its highest point.
3. Place a felt washer and spool of thread on spool pin. Bring thread to the left and pass through arm cover thread guide and under tension disc.
4. Open face plate. Bring thread directly forward along slotted threading path (on the right side of metal plate).
5. Following slotted threading path, bring thread down to the thread check spring and bring it across from right to left. Pull thread upward and slip into the slotted hole of the thread take-up lever from right to left.
6. Draw thread down through lower thread guide, needle bar thread guide and pass thread through eye of needle from front to rear. Instructions for using needle threader is given on following page.



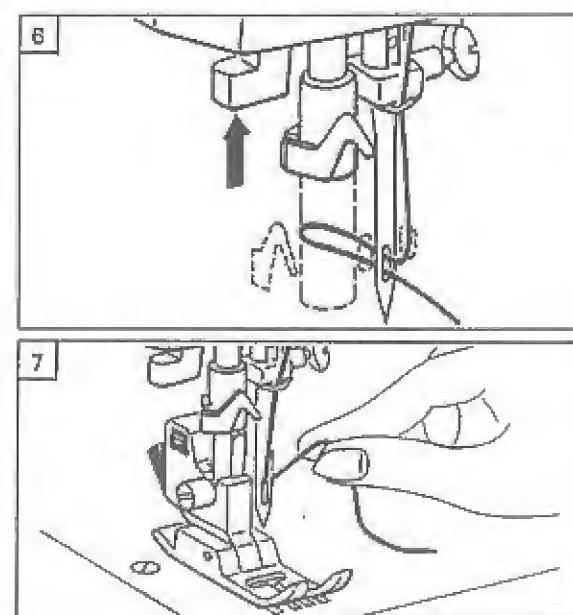
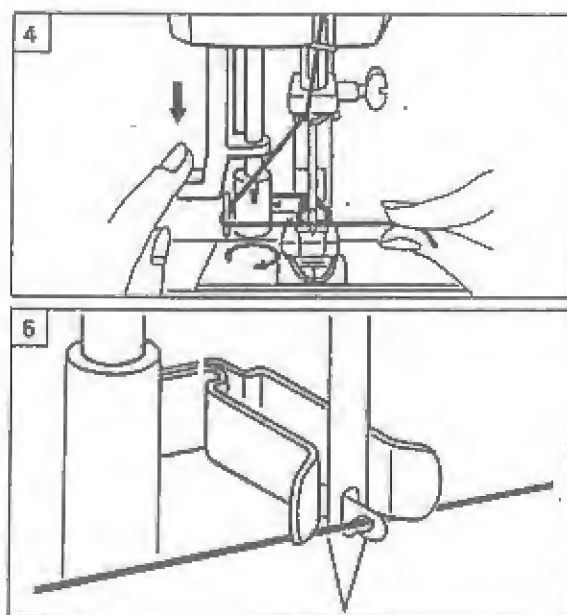
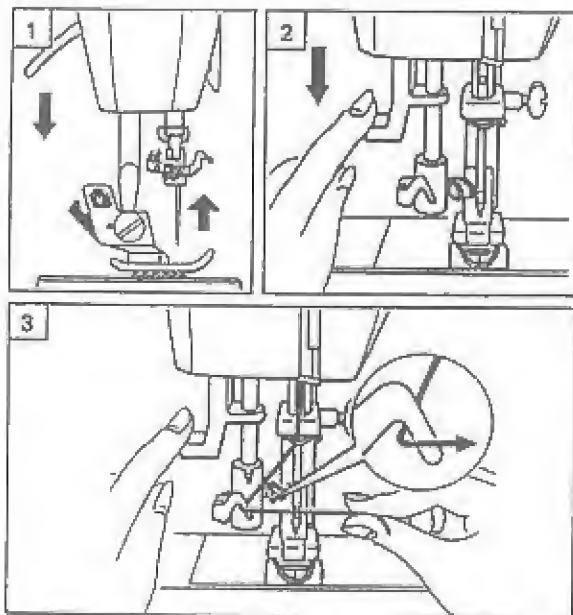
THREADING THE NEEDLE EYE

Your machine is equipped with a built in needle threader. Follow these instructions:

1. Lower presser foot lifter and turn hand wheel toward you until needle is at its highest position.
2. Lower the threader lever.
Stop when threader begins to turn.
3. Hold lever in this position. Hook thread onto the thread guide and pull toward right.
4. Lower lever the rest of the way down.
Threader will make a half turn and the tip of the hook will enter the needle eye.
5. Slide thread along lower side of hook guard.
Make sure the thread catches onto the hook.
6. Hold thread loosely while slowly lifting the threader lever. The thread will pass through the needle eye and threader will return to original position.
7. Pull thread out behind needle about 3 inches out of needle eye.

NOTE:

1. Do not lower needle threader lever while machine is operating.
2. The needle threader is used for needles sized 11, 14, and 16 only.



DRAWING UP BOBBIN THREAD

1. Raise presser foot lifter. Hold upper thread loosely in left hand and turn hand wheel toward you one complete turn with right hand. Draw end of bobbin thread up through hole in needle plate by pulling upper thread.
2. Place both threads under presser foot toward rear of machine.

NOTE: If the bobbin thread cannot be pulled up the needle may not be inserted properly.

STARTING TO SEW

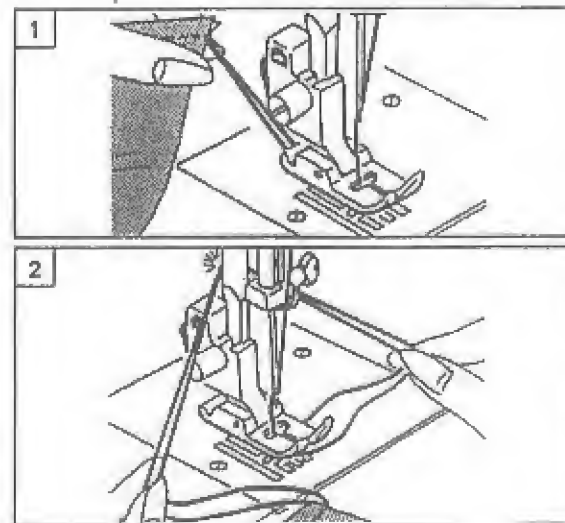
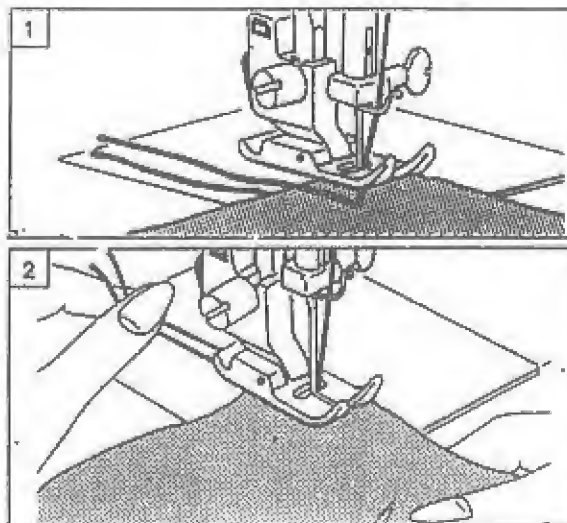
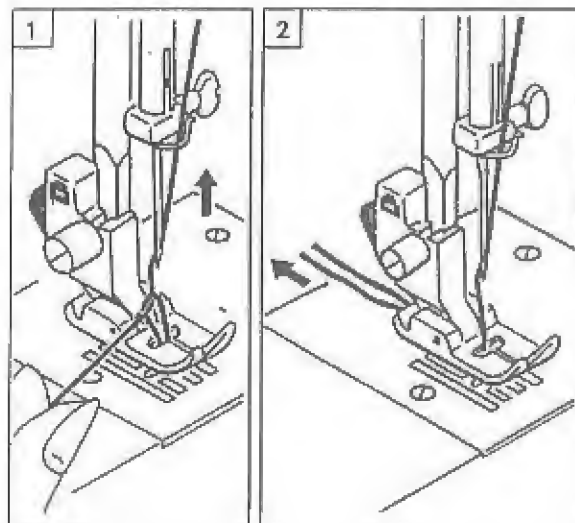
When you have followed the steps outlined so far, your machine is threaded and ready to sew. However, before actually working on your garment, use a scrap of the fabric you will be sewing to test the stitching. Some adjustment in stitch length or tension may be required.

1. Place double thickness of fabric under the presser foot, insert needle into fabric by rotating hand wheel toward you, and lower the foot. Always hold on to both threads when beginning to sew for the first several stitches in order to avoid jamming the machine.
2. Press foot control, and start to sew. The speed at which the machine runs depends on the amount of pressure placed on the foot control and setting of speed control pads. Guide the fabric, but do not pull it. Check the stitching, both top and bottom, and make any adjustment necessary to produce a perfect stitch.

REMOVING THE WORK

When you stop the machine to remove the work, have needle at its highest position. Avoid sewing off end of the fabric.

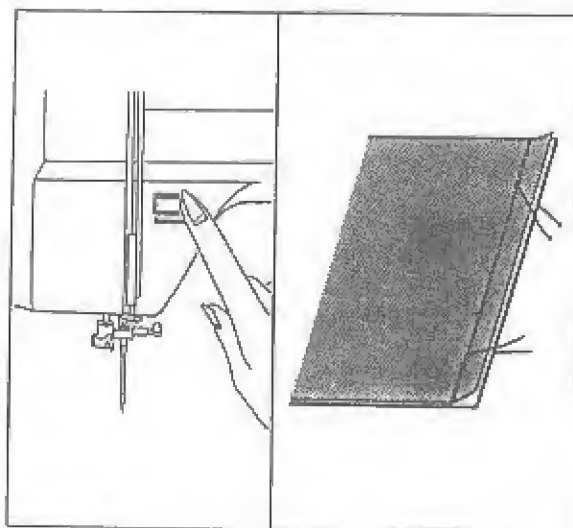
1. Raise presser foot and draw fabric back and to the left.
2. Cut threads by passing them over thread cutter and pulling down on thread.



TACKING ENDS OF SEAMS

USING THE REVERSE STITCH BUTTON

To reinforce the end of a seam, position the needle in the fabric about 1/2-inch from the beginning point and lower the presser foot. Push the Reverse stitch button and hold while backstitching to the edge of the fabric. Release the button and sew the seam. When you reach the end, again push the Reverse button and backstitch for about 1/2-inch.

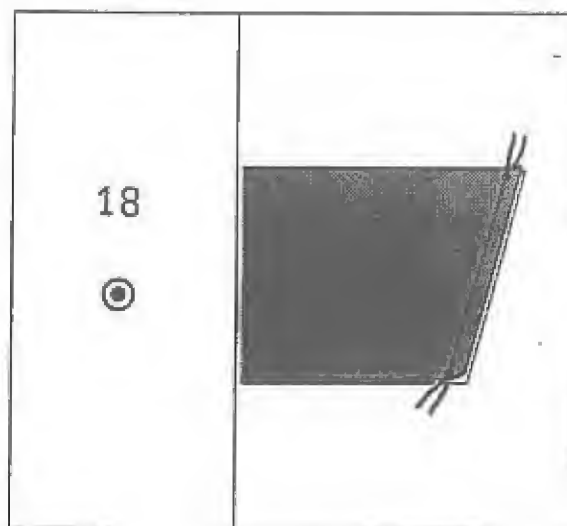


USING THE TACK STITCH

The Tack stitch (18) can be used for tacking beginning and end of a stitch pattern by automatically sewing 5-6 stitches all in the same place.

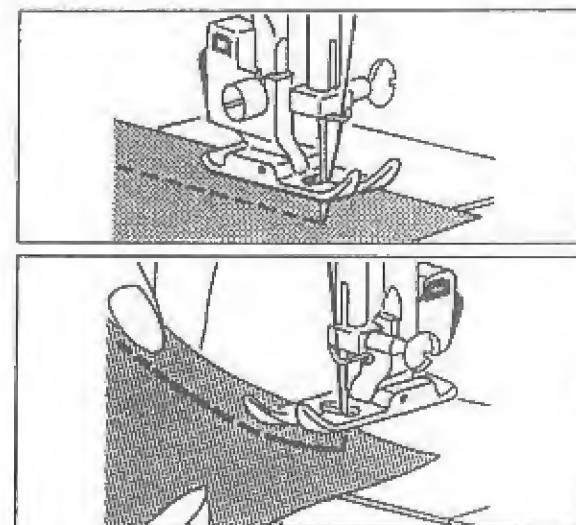
Select desired stitch pattern using selector pads. Select Tack stitch (18), begin sewing. Machine will sew one tack and automatically stop. Lift foot off foot control pedal. The first stitch pattern will appear on the display. Begin sewing. When you reach the end, select the Tack stitch (18) again and sew tacking.

The Tack stitch can also be used at the end of a memory program. See Memory on pages 22 to 24.



TURNING THE CORNERS

1. Stop the machine. Turn the hand wheel toward you to lower the needle into the fabric. Raise the presser foot.
2. Using needle as a pivot, turn fabric; lower presser foot and continue sewing.



REGULATING THE THREAD TENSION

Thread tension must be properly balanced. If adjustment is required, it can usually be made by regulating upper thread tension —NOT bobbin thread.

CORRECT THREAD TENSION

Upper and bobbin thread locked in center of seam.

NOTE:

When stitch is unsatisfactory and seam puckers, tension may be too tight on both upper and bobbin threads.

UPPER THREAD TENSION TOO TIGHT (or bobbin thread too loose)

DECREASE the upper thread tension.

TO DECREASE UPPER THREAD TENSION, lower presser foot and turn tension dial to a lower number.

UPPER THREAD TENSION TOO LOOSE (or bobbin thread too tight)

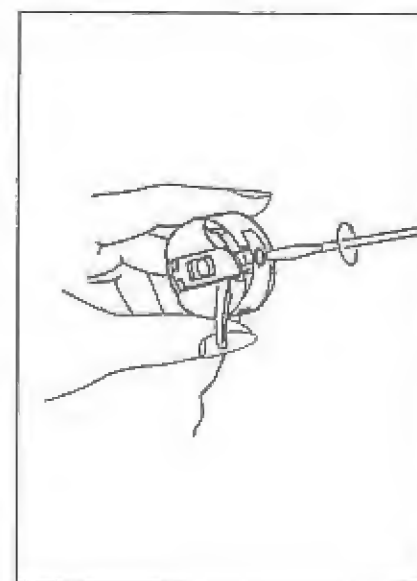
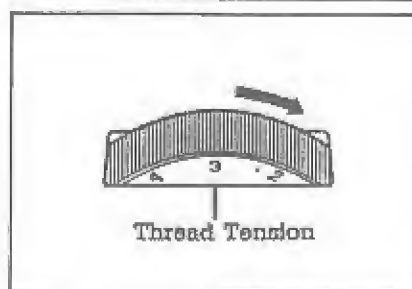
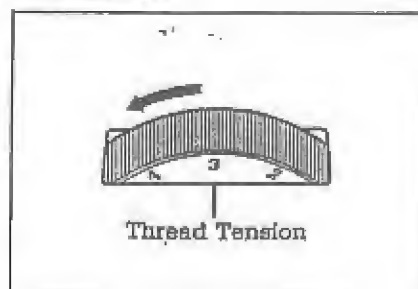
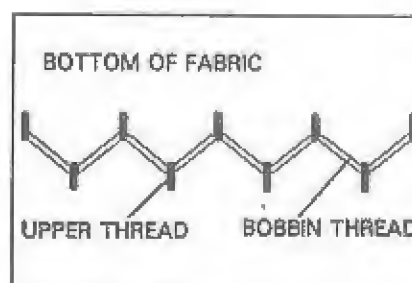
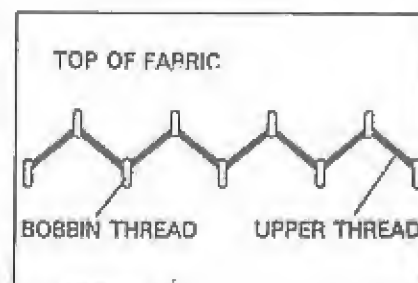
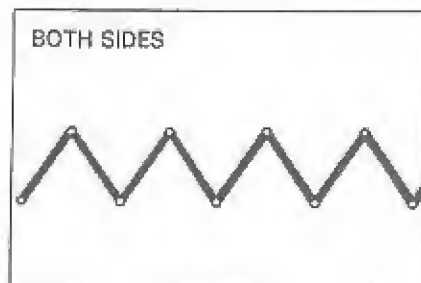
INCREASE the upper thread tension.

TO INCREASE UPPER THREAD TENSION, lower presser foot and turn tension dial to a higher number.

ADJUSTING THE BOBBIN THREAD TENSION

If it is impossible to balance the stitch by adjusting upper thread tension, it may be necessary to make a slight adjustment in bobbin tension, which was preset and tested at the factory. (NOTE: This is a very delicate adjustment and may require no more than a quarter turn the screw.)

TO INCREASE, turn screw located on bobbin case, slightly to the right.
TO DECREASE, turn screw slightly to the left.



ADJUSTING THE TIGHTNESS OF THE FORWARD AND REVERSE STITCHES

Depending on the type of fabric you sew, it may be necessary to adjust the forward and reverse stitches. This adjustment is needed when the buttonhole or the decorative stretch stitch pattern is misformed.

Turn screw which is located below the hand wheel in either direction as may be required.

CAUTION

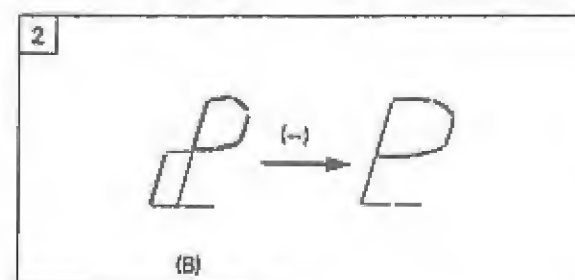
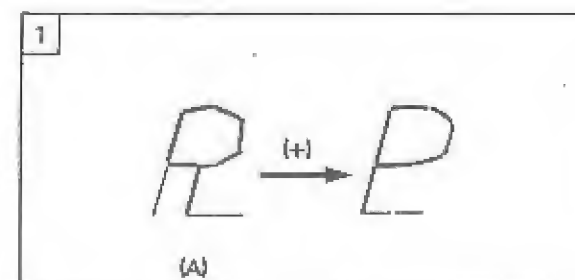
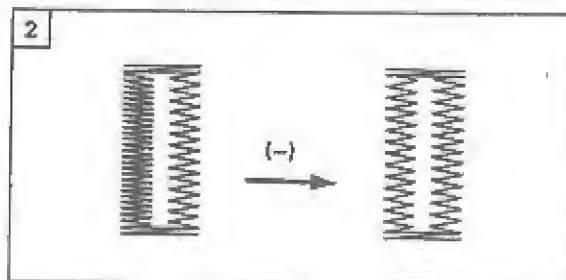
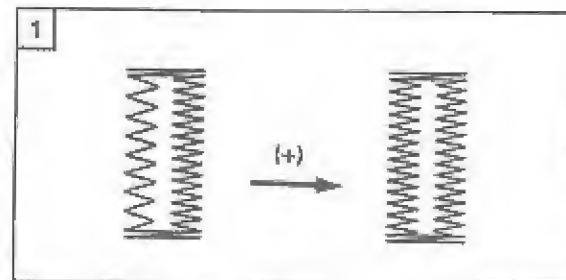
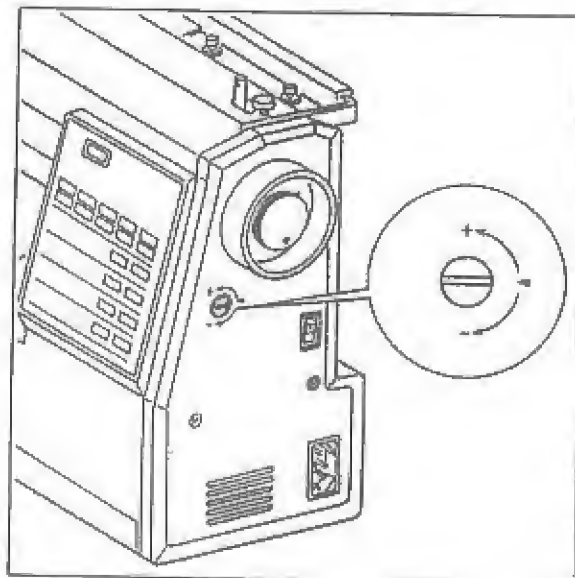
After you have finished the sewing, return the screw to "▲" mark.

BUTTONHOLE

1. If stitches are too loose on the left side, turn screw in left side direction (+).
2. If stitches on the right side are too loose, turn screw in right direction (-).

DECORATIVE OR STRETCH STITCH PATTERN

1. If patterns are misformed as illustration (A), turn screw in left direction (+).
2. If patterns are misformed as illustration (B), turn screw in right direction (-).



STRAIGHT STITCH SEWING

STITCH PATTERN: 00, 07 STITCH LENGTH: Any
PRESSER FOOT : Straight stitch foot STITCH WIDTH : None

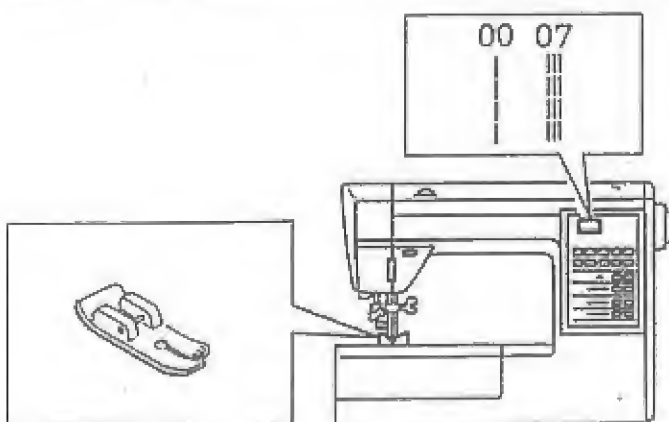
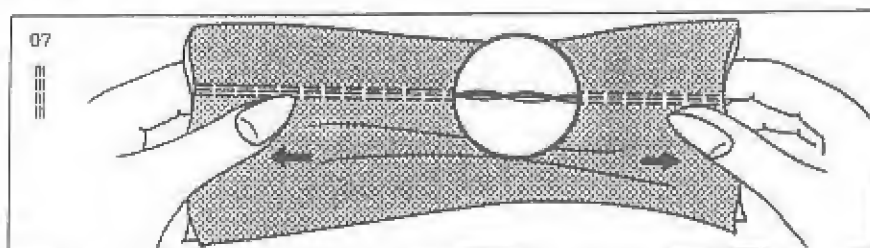
Straight stitch sewing is done with the straight stitch presser foot, and the needle in center position.

When you sew to the stretch fabrics or want to sew stronger seams, set stitch selector to Straight stretch stitch (07).

USING THE STRAIGHT STITCH FOOT

The straight stitch foot should be used when sewing sheer or lightweight fabric where extra support is needed. It also should be used when a finer seam finish is desired.

Do not use this foot except for sewing Straight stitch (00) or Straight stretch stitch (07).

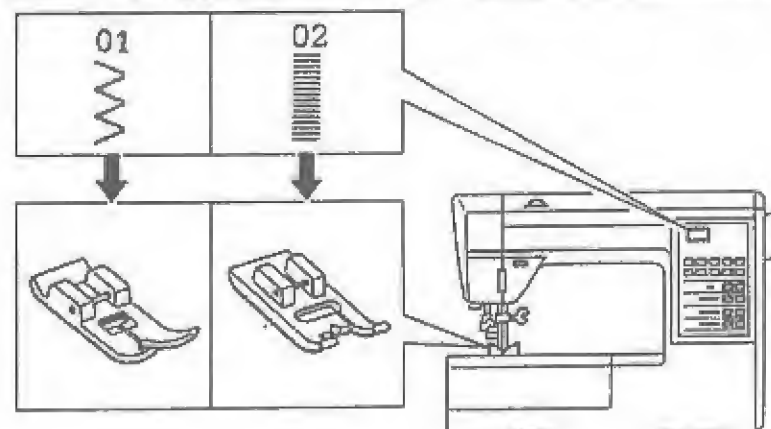
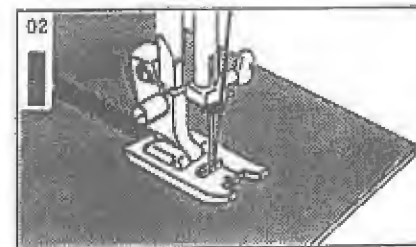
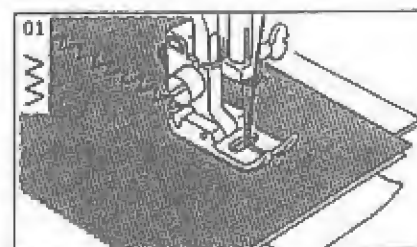


ZIGZAG SEWING

STITCH PATTERN: 01, 02 STITCH LENGTH: Any
PRESSER FOOT : Regular foot (01) STITCH WIDTH : Any
Satin stitch foot (02)

Your machine will produce zigzag stitches of various widths and lengths by setting the Pattern Selector for zigzag stitching and setting the other controls as specified.

When machine is set to Satin Stitch (02), it will preset to closer stitches than the normal zigzag stitch (01). Attach the Satin stitch foot for this stitch (02).



SATIN, DECORATIVE AND LETTER STITCH SEWING

STITCH PATTERN: 02, 19-99 STITCH LENGTH: Any
PRESSER FOOT : Satin stitch foot STITCH WIDTH : Any

Use the satin stitch presser foot for satin stitching and sewing decorative stitch patterns as shown on the pattern chart label. This foot has a full indentation on the underside to permit easy sewing over closely spaced zigzag stitches, and even feeding of the fabric.

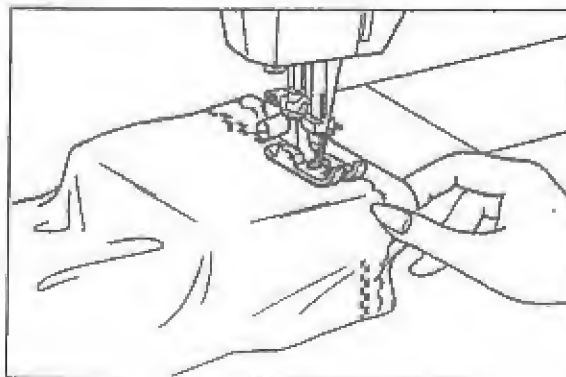
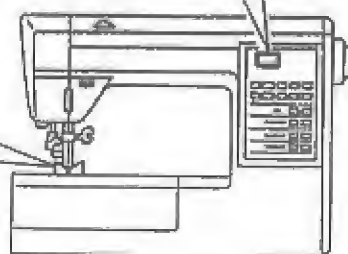
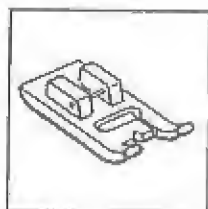
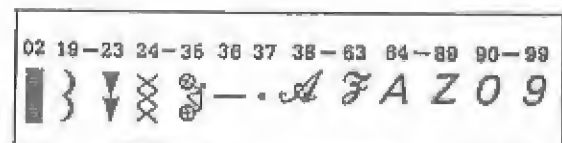
As the letter stitches (37-99) have a built-in tack stitch at the end of each pattern, the machine will stop automatically after sewing each pattern.

The other patterns don't have a built-in tack stitch, therefore the machine will repeat pattern sewing until you release the foot control.

You can combine the decorative patterns easily by using the stitch memory functions. See next page "STITCH MEMORY"

When machine is set to Satin Stitch (02), it will preset to closer stitches than the normal zigzag stitch (01). Set the stitch length to smallest length that still allows fabric to feed through machine.

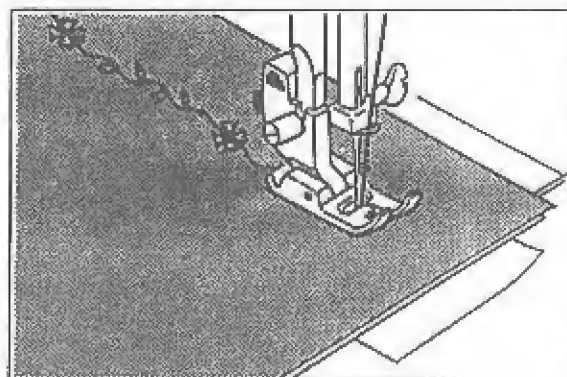
To tailor the decorative pattern to the garment, you may narrow the width of the decorative pattern by touching the stitch width pad to a lower number as desired. To lengthen the pattern, touch stitch length pad to a higher number. Experiment with fabric scraps until you get the desired length and width.



SEWING SHEER FABRIC

When sewing stretch or very sheer fabric which tends to stretch or gather, or which may be marked by the fabric feed dogs, place a thin sheet of paper beneath the fabric while stitching.




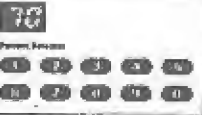


The paper can be easily torn away when sewing is completed. This method is also good for sewing buttonholes, letteres and decorative stitches.



STITCH MEMORY





ENTERING STITCHES INTO MEMORY

A. SINGLE UNITS

1		Select the pattern number you want by touching the corresponding number pads. The pattern number will appear on the stitch pattern number display.
2		Adjust the stitch length and width to change the preset length and width if desired.
3	 NOTE: If you want to memorize one unit of the pattern two or more times, touch the "Enter" pad two or more times. The memory light will blink each time pad is touched. (Single units are illustrated on page 23.)	Touch the "Enter" pad. The memory light will turn on indicating that one unit of the selected stitch pattern is now entered into the memory.
4		Select the next pattern number (The memory light will turn off) and enter it into the memory following the instructions given in steps 1 to 3.
5	 	If the last stitch pattern you have entered was the letter stitch (37-99), the machine will stop automatically after sewing the memorized stitch patterns. Because these patterns have a built-in tack stitch at the end of each pattern. And if a last stitch pattern was not the letter stitch, to stop the machine automatically, select the Tack stitch (18) and enter it after the last stitch pattern.
6	SEE PAGE 24	Press foot control and sew memorized stitch patterns. (See page 24.)

EXAMPLE


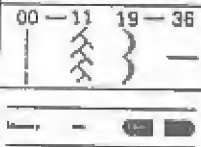
Sew the name "MARY"

1	78 <i>M</i>		Select pattern number (78) and then touch the "Enter" pad. (Memory light will turn on indicating that the pattern has been entered.)
2	84 <i>A</i>		Select pattern number (84) and then touch the "Enter" pad.
3	81 <i>R</i>		Select pattern number (81) and then touch the "Enter" pad.
4	88 <i>Y</i>		Select pattern number (88) and then touch the "Enter" pad. As this pattern has built-in tack stitch, the machine will stop automatically after sewing memorized stitches.

NOTE:

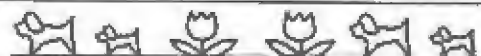
- Before you enter a new stitch pattern into memory, touch the "Clear" pad over 0.5 sec. (until "00" appears on the display) to clear the previous memory. (See page 24 "CLEARING THE MEMORIZED STITCHES.")
- The machine is designed to stop automatically when you reach the last entered tack stitch. Even though you enter the tack stitch or built-in tack stitch at the top or between of memory, the machine will not stop.




B. REPEATING SINGLE UNITS

1		Select the pattern number and enter it into the memory by the same procedure instructed in a back page "SINGLE UNITS" Step 1 to 3.
2		At the last stitch pattern, enter the pattern which doesn't have a built-in tack stitch. (00-11, 19-36). The machine will continue to sew the patterns entered repeatedly.
3	SEE PAGE 24	Press foot control and sew memorized stitch pattern. (See page 24.)

EXAMPLE

Sew border on child's garment



1	34		Select pattern number "34" and enter it by touching the "Enter" pad.
2	34		Each time you touch the "4" pad for stitch length and stitch width, the pattern will become smaller. Touch "Enter" pad.
3	33		Select pattern number "33" Touch the "Enter" pad twice to enter two units of pattern. The Tack stitch or built-in tack stitch was not entered at the end of last stitch pattern. Therefore the machine will continue to sew the patterns entered repeatedly.

ONE UNIT OF PATTERN

When you touched the "Enter" pad once after selected pattern number, one unit of that pattern will be memorized. The portion marked gray on chart below shows one unit of that pattern.

NOTE: Do not attempt to memorize buttonhole (12-17) together with other patterns because buttonholes will deform. To memorize buttonholes see page 28.

00	01	02	03	04	05	06	07	08	09	10	11		18	19	
	W		W	W	W)		W	W	W	W	X	—	⊙	}
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
L	L	W	▼	X	⊞	W		*	⊞	W	W	W	W	W	⊞
36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
—	.	A	B	C	D	E	F	G	H	I	J	K	L	M	N
52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67
O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D
68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83
E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
U	V	W	X	Y	Z	0	1	2	3	4	5	6	7	8	9

CLEARING THE MEMORIZED STITCHES (Below chart A)

There are two methods to clear the memorized stitches by using the "Clear" pad.

1. Clearing one unit

Touch the pad "Clear" less than 0.5 sec.
The last unit entered has been cleared.
The pattern number indicator indicates the number one unit back.
Repeating this method, machine will clear the each entered unit from back. When all entered unit have been cleared, "00" will appear on the stitch pattern number display.

2. Clearing all memorized stitches

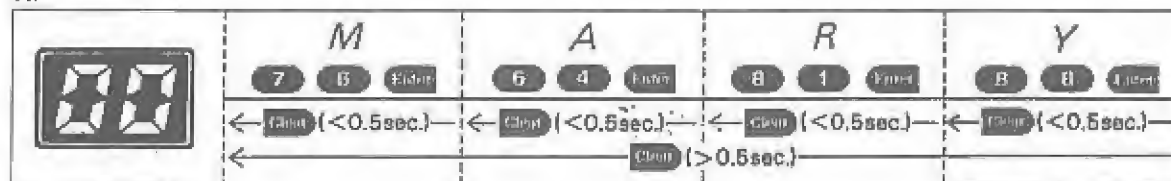
Touch the pad "Clear" over 0.5 sec.
All memorized stitch patterns have been cleared.
The stitch pattern number display will indicate "00" and automatically set to straight stitch.

Use this method when you completed desired stitch memory sewing or when you enter a new stitch patterns into memory.

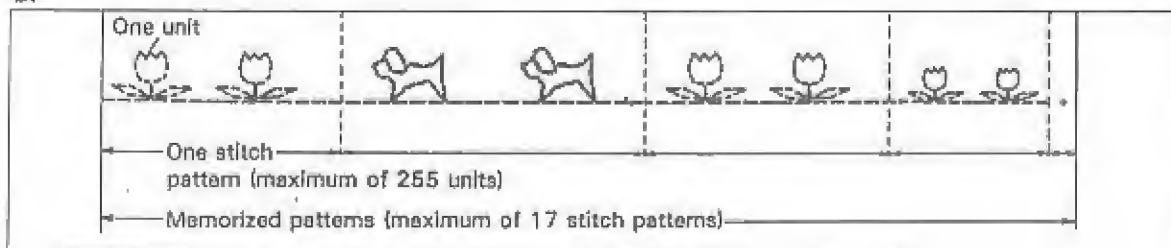
THE LIMIT OF THE STITCH MEMORY (Below chart B)

1. This machine will enter a maximum of 17 different stitch patterns.
If 1 pattern is made in 2 different sizes it is counted as 2 patterns.
2. A maximum of 255 units of one stitch pattern can be entered by touching the Enter pad 255 times.
If you want to sew the same pattern consecutively 10 times, touch Enter pad 10 times.

A:



B:



SEWING MEMORIZED STITCH PATTERNS

Attach the Satin Stitch Presser Foot when sewing memorized stitch patterns.

1	After you have entered the last stitch pattern by touching the "Enter" pad, press on foot control and sew. Pattern numbers on the display will change in accordance with the pattern being sewn.
2	<p>A. SINGLE UNITS When you enter the Tack stitch or built-in tack stitch at the end of memorized stitch pattern, the machine will stop automatically after tacking. NOTE: If you want to repeat the memorized stitch patterns, press on foot control again.</p> <p>B. REPEATING SINGLE UNITS If you did not enter the Tack stitch or built-in tack stitch at the end of memorized stitch pattern, the machine will continue to sew the memorized patterns repeatedly until you stop the machine.</p>
3	Touch the "Clear" pad over 0.5 sec. The stitch memory indicator light will turn off and "00" will appear on the stitch pattern number display indicating that all memorized patterns have been cleared.

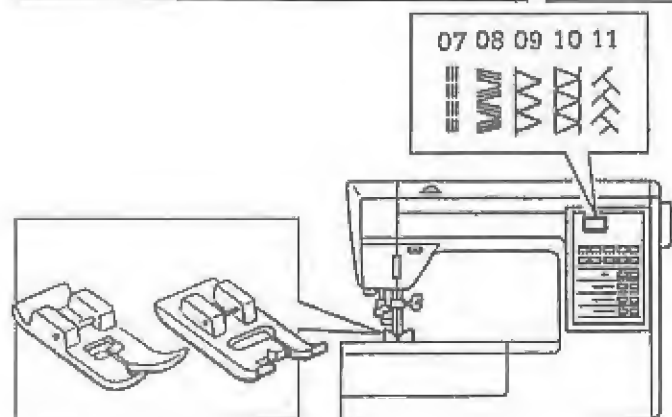
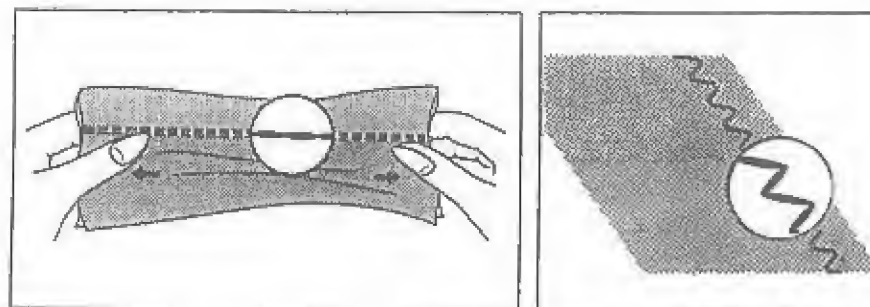


STRETCH STITCH SEWING

STITCH PATTERN: 07, 08, 09, 10, 11 STITCH LENGTH: Any
PRESSER FOOT : Regular or satin stitch foot STITCH WIDTH : Any

Over 55% of all fabrics sold today are synthetics. Stretch fabrics are used for many things. Without the stretch stitch it would be difficult to sew these stretch fabrics. That's what's so nice about this model with its built-in stretch stitches. It assures you of a stitch that will give with the fabric . . . no binding or breaking.

We recommend you that you should use knit needle (with blue shank) for sewing stretch fabrics.

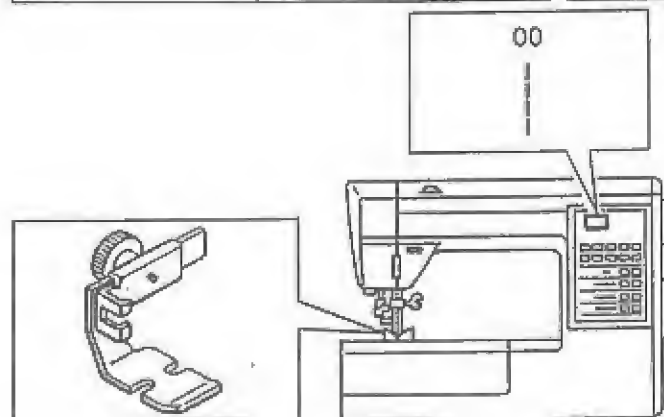
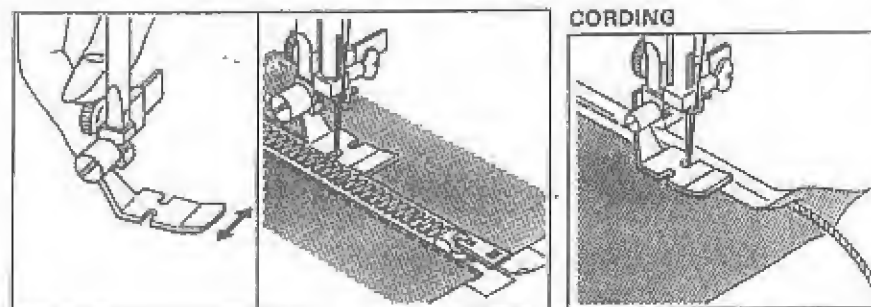


SEWING ZIPPERS AND CORDING

STITCH PATTERN: 00 STITCH LENGTH: Any
PRESSER FOOT : Zipper foot STITCH WIDTH : Any

The zipper foot is designed for stitching close to a raised edge. When sewing zippers and cording, the foot can be adjusted to either the right or left side of the needle for sewing close to the edge of the zipper or cording.

1. Remove presser foot holder and attach zipper foot.
2. Loosen thumb screw on the horizontal bar and slide foot to the right or left of the needle so stitching can be made close to the edge of the zipper.
3. Test position by slowly turning hand wheel and lowering needle into the notch in the foot. When desired position is located, tighten the screw.



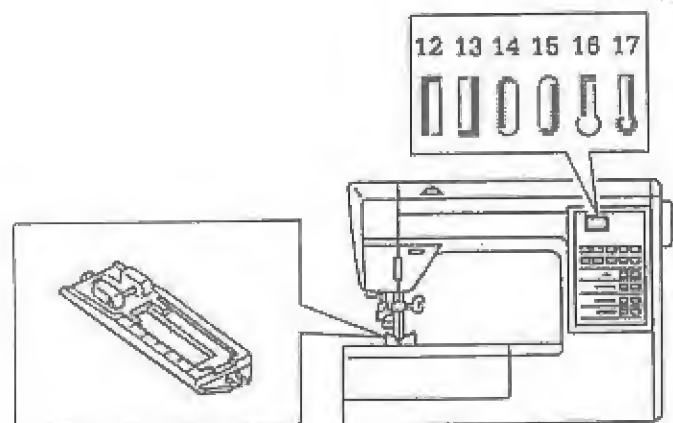
BUTTONHOLE SEWING

STITCH PATTERN: 12-13, 14-15, 16-17 STITCH LENGTH: Any
PRESSER FOOT : Buttonhole foot STITCH WIDTH : Any

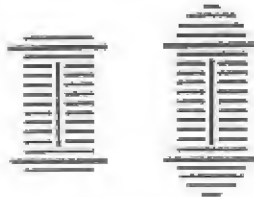
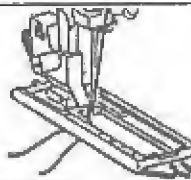
The buttonhole foot is designed for maximum visibility and rides easily over the buttonhole stitching. A buttonhole consists of two parallel rows of satin stitches connected at the ends. Correct positioning of the fabric and accurate measuring and marking of the hole length are important in producing a professional-looking buttonhole. Fabric must be guided carefully so that lines of stitching will be straight and close together, but not touching.

First, work a sample buttonhole in the same fabric as the garment. Use a double thickness of fabric, and include interfacing for stability. Adjust stitch length to make sure that you have the most suitable setting.


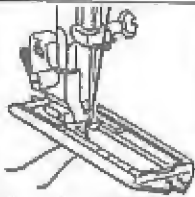
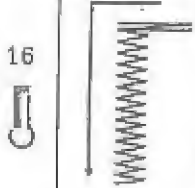
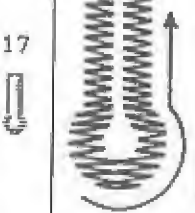
This sewing machine will make three types of buttonholes, a bar-tack buttonhole (12, 13), a round-tack buttonhole (14, 15) and a keyhole buttonhole (16, 17).



BAR-TACK AND ROUND-TACK BUTTONHOLE

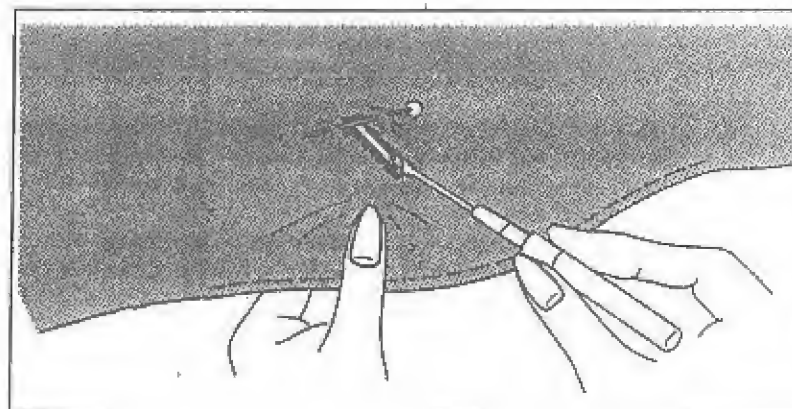
1			Mark position and length of buttonhole on fabric. Length of the hole is determined by the width and thickness of the button combined; the thicker the button, the longer the buttonhole. The finished buttonhole should be about 1/8 inch longer than this measurement to allow for bartacks or round-tacks at each end.
2			Pull the buttonhole foot all the way forward. Position fabric under presser foot so that the center line mark is in the center of the buttonhole foot and the needle is directly above the start line mark.
3	12	14	When correct location is located, turn hand wheel one complete turn forward so needle goes down and up again, bring up the bobbin thread to the surface of the fabric. Set Stitch Pattern Number "12" (Round-tack "14"). Check if the buttonhole foot is pulled all the way forward. Lower the presser foot. Press the foot control down. The machine will first sew a row of stitches on the left side. When you have reached the end mark, stop the machine.
4	13	15	Set stitch pattern number "13" (Round-tack "15"). Press the foot control down. The machine will begin to sew bottom bartack (roundtack) and then continue to sew a row of stitches on the right side. When you reach the start line mark, stop the machine.

KEYHOLE BUTTONHOLE

1		Mark position and length of buttonhole on fabric. Adjust the start and end marks to the size of the button. Be sure the hole portion of the keyhole faces the edge of the garment.
2		Pull the buttonhole foot all the way forward. Position fabric under presser foot so that the center line mark is in the center of the buttonhole foot and the needle is directly above the start line mark.
3	16 	Set to stitch pattern number (16) display will show 16 and press foot control down. The machine will first sew the top bartack and then continue to sew a row of stitches on the left side. Stop the machine when you have reached the end mark.
4	17 	Next, set machine to stitch pattern number 17.
5		Press the foot control down. The machine will begin to sew the arc and then continue to sew a row of stitches on the right side. Stop the machine when you reach the bottom bartack. Gently guide and hold the fabric especially around the keyhole.



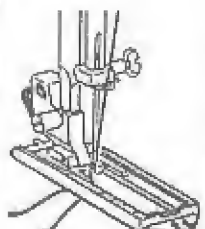
After buttonhole is sewn, draw upper thread through to underside, and knot upper and bobbin threads.
Cut center of buttonhole with embroidery scissors or seam ripper, being careful not to cut stitching on either side.

NOTE: When you change the pre-set stitch length on 12, 14, 16, the length on 13, 15, 17 will be set to the same length automatically.



BUTTONHOLE MEMORY SEWING

This machine allows you to sew the same size buttonholes as many times as you want.

1	12 13 14 15 16 17 	Set the pattern number to desired type buttonhole and sew it to size needed by following the instructions given on page 26 to 27.
2		Touch the "Enter" pad and the light on the stitch memory indicator will turn on. The machine is now ready to sew the memorized buttonhole.
3		Place fabric under the presser foot. Lower the presser foot and press on foot control. The machine will sew the same size buttonhole which you memorized and will stop automatically after tacking the end of each buttonhole. The speed for sewing buttonholes must always be the same speed that was used for memorizing. When sewing is completed, touch the "Clear" pad over 0.5 sec. until "00" appears on the stitch pattern number display.

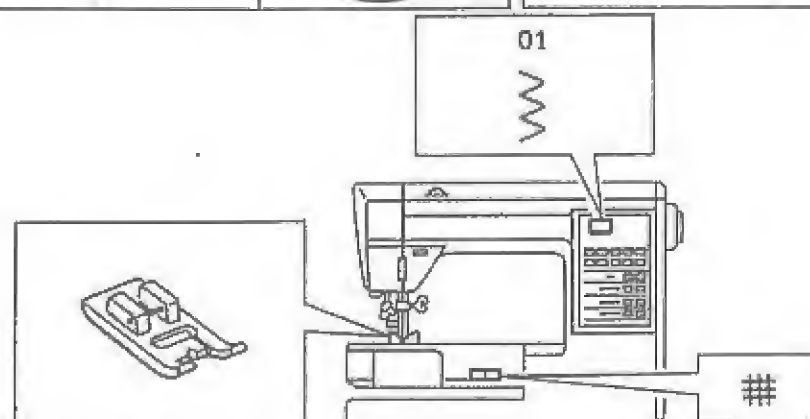
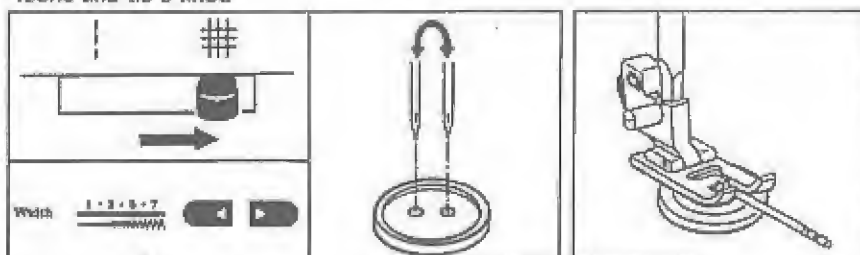
- NOTE:
1. The type of fabric and thread, layers of fabric, pressure regulation or size of buttonhole must be exactly the same as that when memorizing. If this is not possible, sew each buttonhole individually, without use of the memory.
 2. To clear buttonhole memory, touch the Clear pad over 0.5 sec..
 3. Stronger, more compact buttonholes can be made by adjusting stitch length to a shorter stitch or going around the buttonhole twice.
 4. If you want to start over before the buttonhole is finished, touch the "Enter" pad once. The machine automatically resets to the beginning of the memorized buttonhole.

SEWING ON BUTTONS

STITCH PATTERN: 01 STITCH LENGTH: Any SEW-DARN LEVER: Darn
PRESSER FOOT : Satin stitch foot STITCH WIDTH : Set to fit the holes of button

1. Set the Sew-Darn lever to Darn (to the right side).
2. Place a button under the foot and lower the presser foot.
3. Adjust the stitch width according to the width of the holes by turning the hand wheel slowly so that the needle enters the both holes of button. Start the machine and make 5 or 6 stitches.
4. To lock stitch, pull upper and bobbin threads to underside of fabric and tie a knot.

A rounded woodenpick may be placed on the button between the two holes while the button is being sewn to the fabric. When the woodenpick is removed, the button will be loosely attached. Pull button up and wind thread around the threads holding the button to form a shank, then pull threads to underside of fabric and tie a knot.



OVERCASTING SEAMS

STITCH PATTERN: 01, 09 STITCH LENGTH: Any
PRESSER FOOT : Regular foot STITCH WIDTH : Any

Seam edges which tend to ravel can be given a durable finish with machine overcasting.
You may adjust the stitch length and width if necessary.

ZIGZAG OVERCASTING

Method 1:

Trim seam edges evenly and place stitching over raw edge. This type of seam finish is best for firmly woven fabrics.

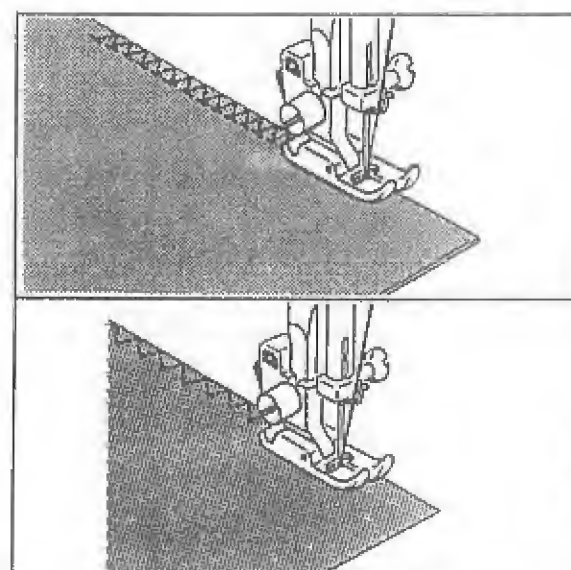
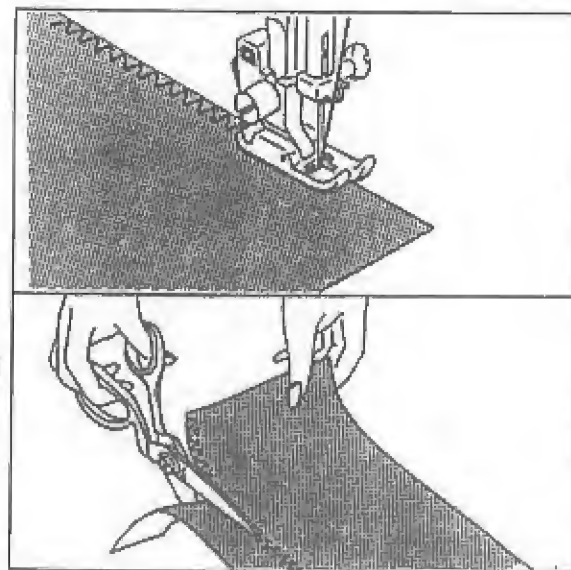
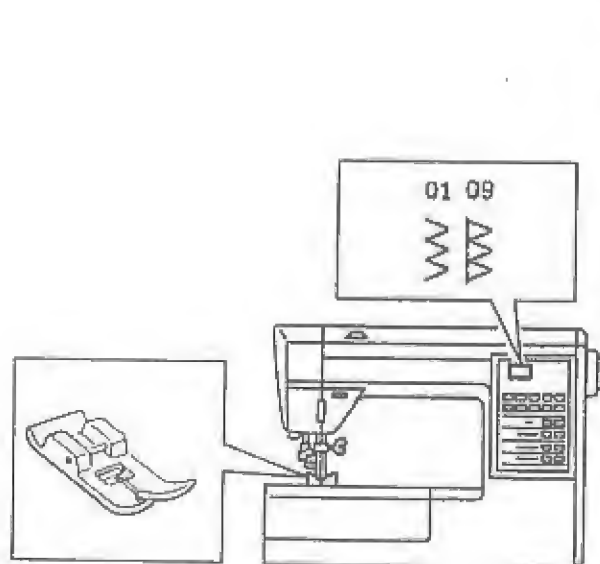
Method 2:

Place stitching near edge of seam allowance and trim away excess fabric after stitching. This type of seam finish is best for fabrics which fray easily, lightweight fabrics, and knit fabrics which will roll.

OVERCASTING STITCH

The overcasting stitch simultaneously makes and finishes the seam.




The multiple zigzag stitch (03) is suited for sewing stretch fabrics.



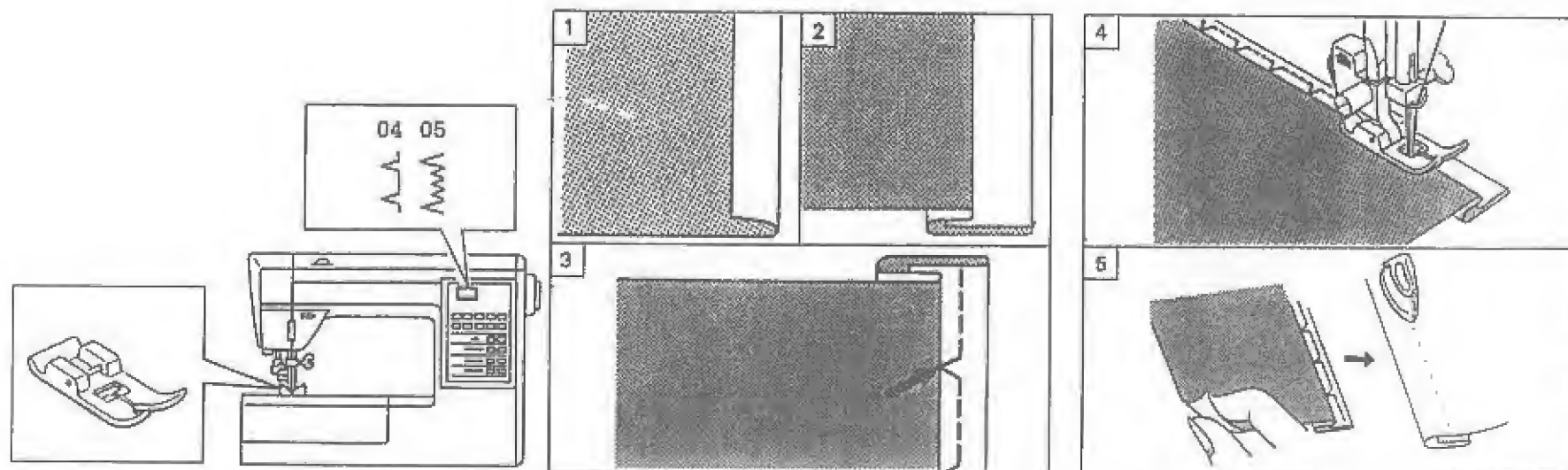
BLIND HEM STITCHING

STITCH PATTERN: 04, 05 STITCH LENGTH: Any
PRESSER FOOT : Regular foot STITCH WIDTH : Any

The blind hem stitch (04) consists of four straight stitches and one zigzag or blind stitch. It produces a durable hem which is almost invisible on the right side of the article sewn. It may be used on regular hems, or hems finished with seam binding.

The blind hem stitching can be done using stitch selector 04 () or 05 (). Pattern number 05 () is good for hemming stretch fabrics. All other settings are the same for both patterns.

1. Sew on seam binding, if used. Attach regular presser foot. Measure, turn and press or baste hem in the usual manner. If seam binding is not used, fold over raw edge slightly more than 1/4 inch.
2. Fold hem back against right side of garment with top edge of hem extending about 1/4 inch to the right of the garment.
3. Place garment under presser foot so that the straight stitches are on the protruding hem edge and zigzag stitch just catches one thread of the folded edge.
4. Guide fabric evenly while sewing.
5. When hem is completed, press hem.



QUILTING

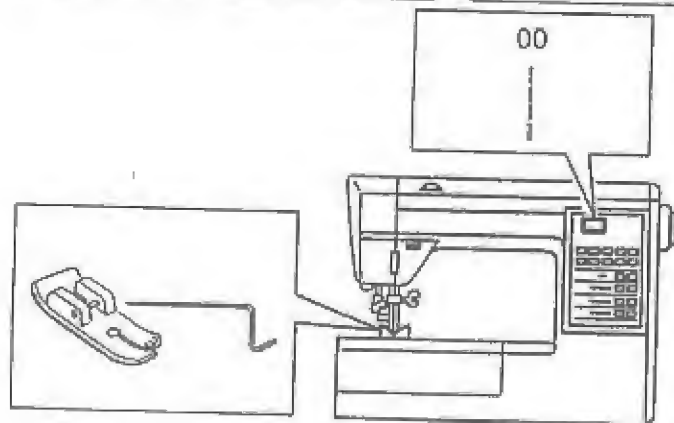
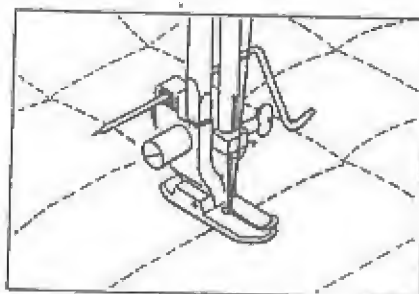
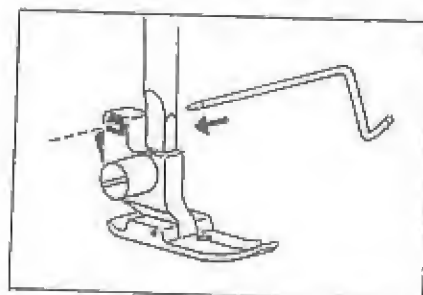
STITCH PATTERN: 00

PRESSER FOOT : Straight stitch foot, Quilting guide

STITCH LENGTH: Any

STITCH WIDTH : None

1. Insert quilting guide in presser foot holder and attach straight stitch foot. Quilting guide may be inserted to project either to the right or left of the foot, whichever is more convenient for handling the object being sewn.
2. Place fabric under the foot and adjust the curved portion of the guide bar so it will lightly rest on the fabric at the distance from the needle desired between rows of stitching.
3. Set controls for a medium length or long straight stitch (depending on fabric) and sew the first row of stitches.
4. Move the fabric over and sew successive rows with the guide riding along on the previous row of stitching.



APPLIQUE

STITCH PATTERN: 02

PRESSER FOOT : Satin stitch foot

STITCH LENGTH: Any

STITCH WIDTH : Any

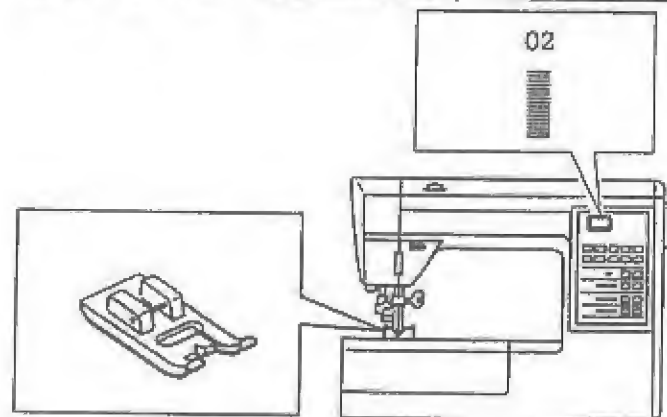
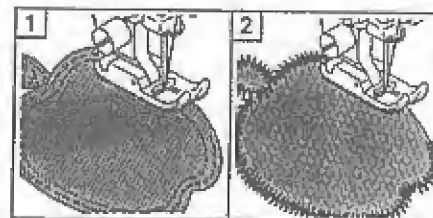
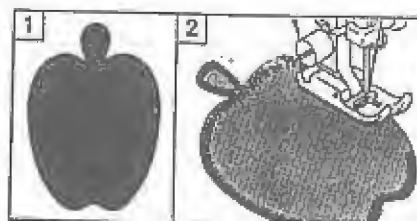
Applique is a cut-out design of one fabric sewn to another. This method of decoration adds beauty and interest to wearing apparel and household items. The design may be finished with a satin stitch.

Method 1:

1. Position the design and baste it to the fabric by hand, machine or attach using fusible tape.
2. Set controls for satin stitch. Sew around entire edge of design. When stitching is completed, trim away any excess fabric around the outer edge.

Method 2:

1. After basting, outline entire design with a short straight machine stitch. Trim edges close to stitching.
2. Readjust machine for satin stitching. Overstitch edge of design. This results in a smooth finish which requires no trimming.

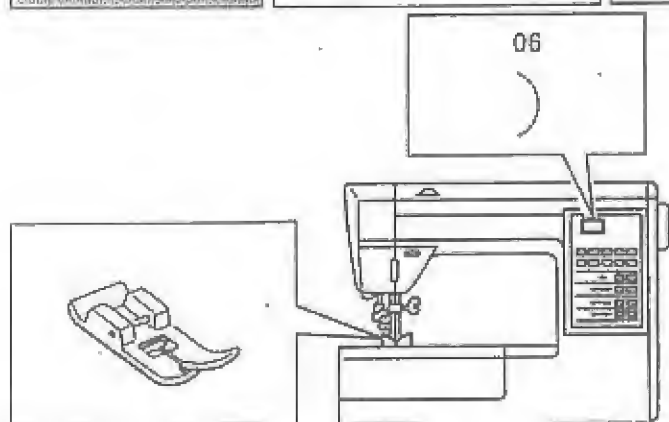
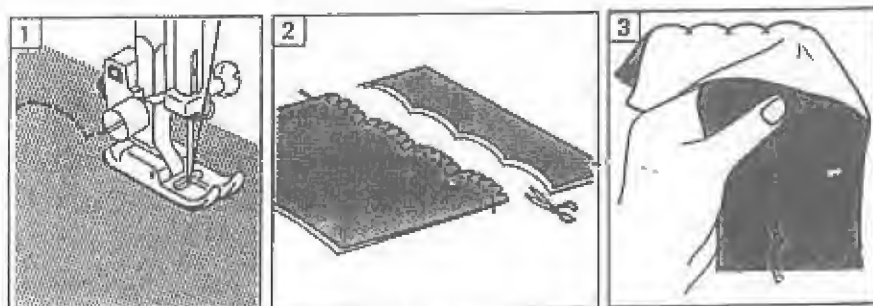


SCALLOP STITCH

STITCH PATTERN: 06 STITCH LENGTH: Any
PRESSER FOOT : Regular foot STITCH WIDTH : Any

This stitch is used to sew edge decorations on women and children's wear and table cloths.

1. Fold the fabric right sides together in and sew along the edge.
2. Cut the fabric along the seam leaving an allowance of 1/8" for seaming. Notch the allowance.
3. Turn fabric over and push out the curved seam to the surface and press it.

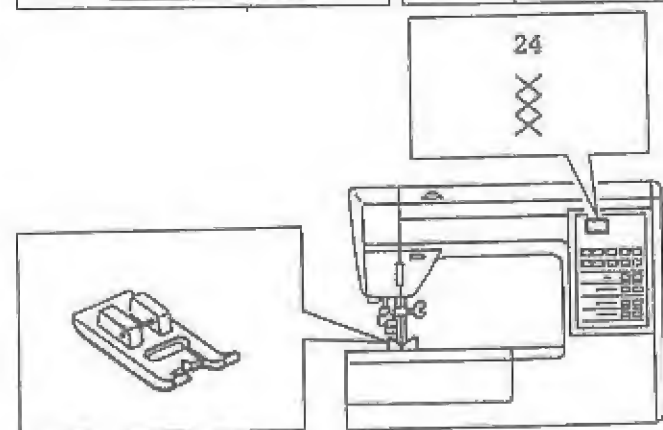
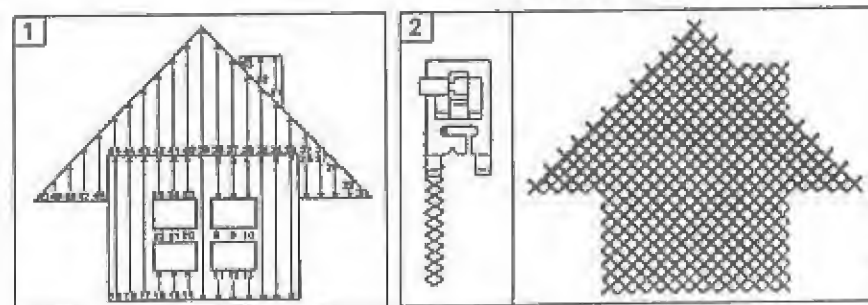


COUNTED CROSS STITCH

STITCH PATTERN: 24 STITCH LENGTH: Any
PRESSER FOOT : Satin stitch foot STITCH WIDTH : Any

You can enjoy sewing unique patterns by sewing rows of counted cross stitches.

1. First draw pattern on fabric. Then determine the base line which should be as close to the center on the pattern as possible. Then determine the sequence you will sew, and at what point you want to turn fabric to complete the pattern.
2. Sew a row of cross stitches to make the base line of the pattern. Then sew the second row of stitches, shifting the fabric to the right and placing the fabric so that the needle falls on the right upper end of the first cross stitch sewn on the first row of stitches.



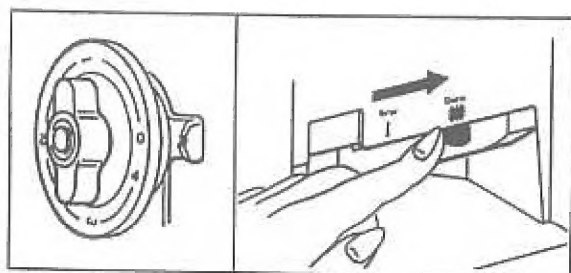
DARNING AND FREE-MOTION EMBROIDERY

STITCH PATTERN: 00, 01
PRESSER FOOT : Satin stitch foot

STITCH LENGTH: Any SEW-DARN LEVER: Darn
STITCH WIDTH : Any

Set the Sew-Darn lever to "Darn".

Completely release the pressure on foot by setting the pressure regulator at "0".



DARNING

Worn or torn areas on household items and clothing can be darned quickly with little practice.

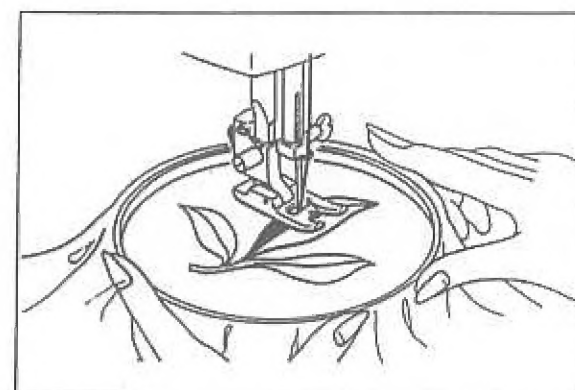
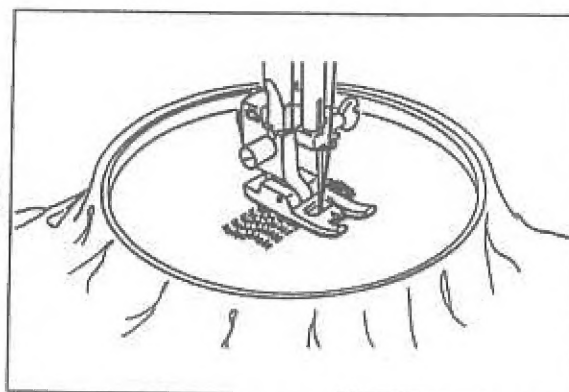
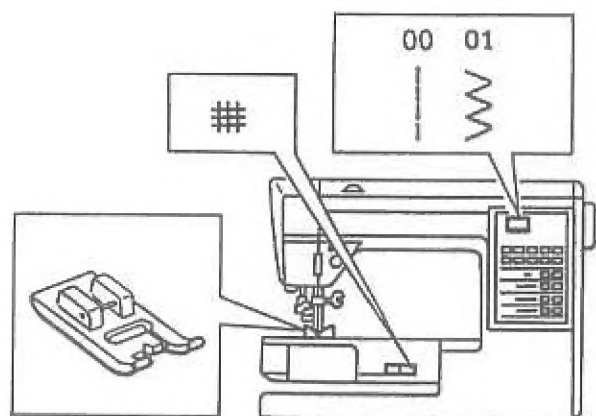
Place fabric under foot; lower presser bar. Grasp fabric firmly in front and back of area to be darned. Operate machine, moving fabric forward and backward with an even motion, stitching in closely spaced rows over the hole or worn area. Be sure to stitch into the firm fabric at each end. When the area is filled with new stitches, move fabric from side to side in a similar manner to weave or reinforce the stitching.

NOTE: Reinforce open areas with an underlay; baste underlay in place before darning.

FREE-MOTION EMBROIDERY

Free-motion machine embroidery is attractive and practical on wearing apparel and many household items. Unlimited effects that can be produced when the operator acquires dexterity in this method of embroidering. However, each pattern requires different handling which are achieved by testing and practice.

1. Place design to be embroidered between the two sections of embroidery hoop. Set embroidery hoop under needle and lower presser bar.
2. Start running machine at medium speed, guiding hoop carefully so needle moves along line of the pattern.

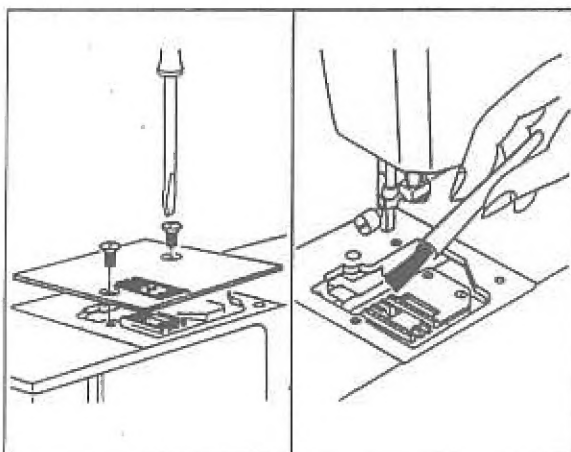


CLEANING AND MAINTENANCE

If lint and bits of thread accumulate under the needle plate, around the fabric feed dogs, and in the shuttle, this will interfere with the operation of the machine. Check occasionally and clean the stitching mechanism when necessary. Since your sewing machine has been made from the finest quality materials, your machine requires no lubrication under normal conditions. Do not oil the machine because it is permanently lubricated. All you have to do is put a drop of oil in the shuttle race occasionally.

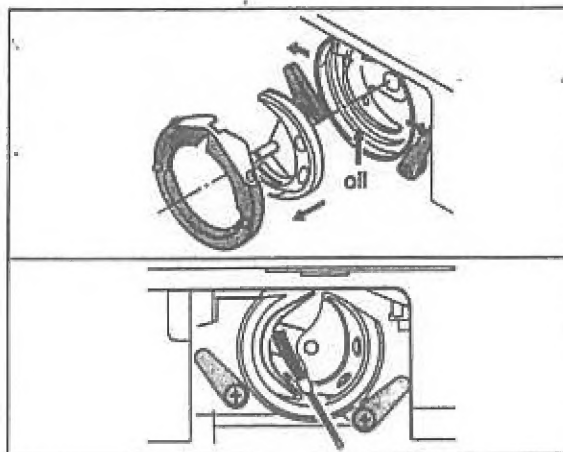
AROUND THE FABRIC FEED DOGS

Remove the lint that accumulate in the vicinity of the machine feed dogs with a soft brush. To do this, remove the needle plate by removing the two screws which hold it in place. Packed lint can be removed with a wooden pick.



IN THE SHUTTLE

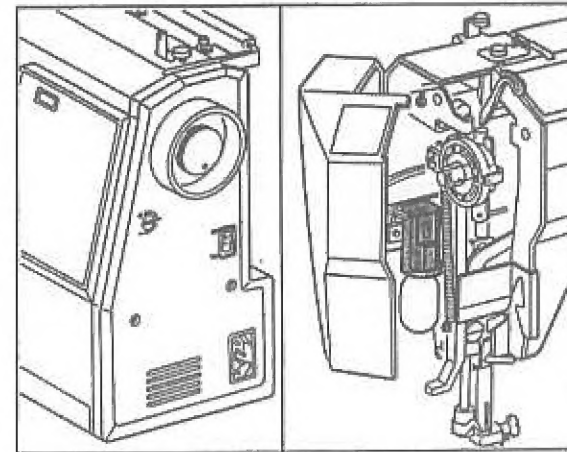
Turn hand wheel toward you until needle reaches its highest position. Remove storage compartment. Open bobbin case cover and remove bobbin and bobbin case. Open latch retainers by swinging away from the bobbin. Remove shuttle cover and half moon piece. Thoroughly clean under the fabric feed and around the shuttle with a soft brush. Put one drop of oil on the shuttle race (this is indicated by an arrow). Replace half-moon which lays loosely in position; replace the cover, making sure the notch pin fits in the notch. Lock in position by moving the retainers toward the bobbin, until they click into position. Replace the bobbin and bobbin case.



SEWING LIGHT BULB

The sewing light is controlled by the light and power switch which is located on the bed of the machine above the terminal box. To replace the bulb, open face plate and unscrew bulb from socket. Replace with same wattage and size bulb.

CAUTION: Before attempting to change the bulb remove the electrical cord from the wall outlet.



BEFORE YOU CALL FOR SERVICE

Your new Sewing Machine was carefully inspected and tested at the factory and was in perfect working order when shipped. Under normal conditions, if you carefully follow instructions for threading, operating and maintenance, your machine will give you years of trouble-free service.

Occasional difficulties are usually caused by a condition that can be easily remedied with a minor adjustment. Some possible problems and their causes are given on the follows.

PROBLEM	CAUSE	CORRECTION
UPPER THREAD BREAKS	Needle inserted incorrectly Tension on upper thread too tight Needle eye has sharp edges Machine not properly threaded	Reset needle Loosen upper thread tension Insert new needle Rethread machine
BOBBIN THREAD BREAKS	Bobbin case threaded incorrectly Bobbin thread tension too tight Bobbin wound unevenly or too full	Rethread bobbin case Loosen bobbin thread tension Rewind the bobbin
MACHINE SKIPS STITCHES	Bent or blunt needle Needle inserted incorrectly Pressure on foot insufficient	Insert new needle Reset needle Increase pressure
NEEDLE BREAKS	Pulling fabric while sewing Incorrect size needle or thread for fabric being sewn Needle is inserted incorrectly	Do not pull fabric Choose correct size needle & thread Reset needle
MACHINE DOES NOT FEED PROPERLY	Sew-Dam lever improperly adjusted Pressure on presser foot insufficient	Set Sew-Dam lever to "Sew" Increase pressure
FABRIC PUCKERS	Upper thread tension too tight Bobbin thread tension too tight Fabric too sheer or too soft	Loosen upper thread tension Loosen bobbin thread tension Use underlay of tissue paper
MACHINE MAKES LOOSE STITCHES OR LOOPS	Tension not adjusting properly	Check thread tensions
MEMORIZED STITCHES DIFFERENT SIZES	Enter pad may have been touched twice while programming Sewn at different speeds Different type or thickness of fabric from memorizing	Reprogram the stitch patterns Sew same speed as used for memorizing Sew same type and thickness of fabric as used for memory
MACHINE RUNS HEAVILY	Machine needs oiling Dirt or lint in shuttle Dirt or lint between teeth of fabric feed dogs	Oil the machine Disassemble and clean shuttle Remove needle plate and clean fabric feed dogs
MACHINE WILL NOT SEW	Cord not plugged into electrical outlet Light and power switch not switched on	Check plug Turn the switch on

MEMO

Blank lined area for writing the memo content.